Astronomy
QB1.U57, N0428 pt1

APRIL 1980 NUMBER 428 -- Part I

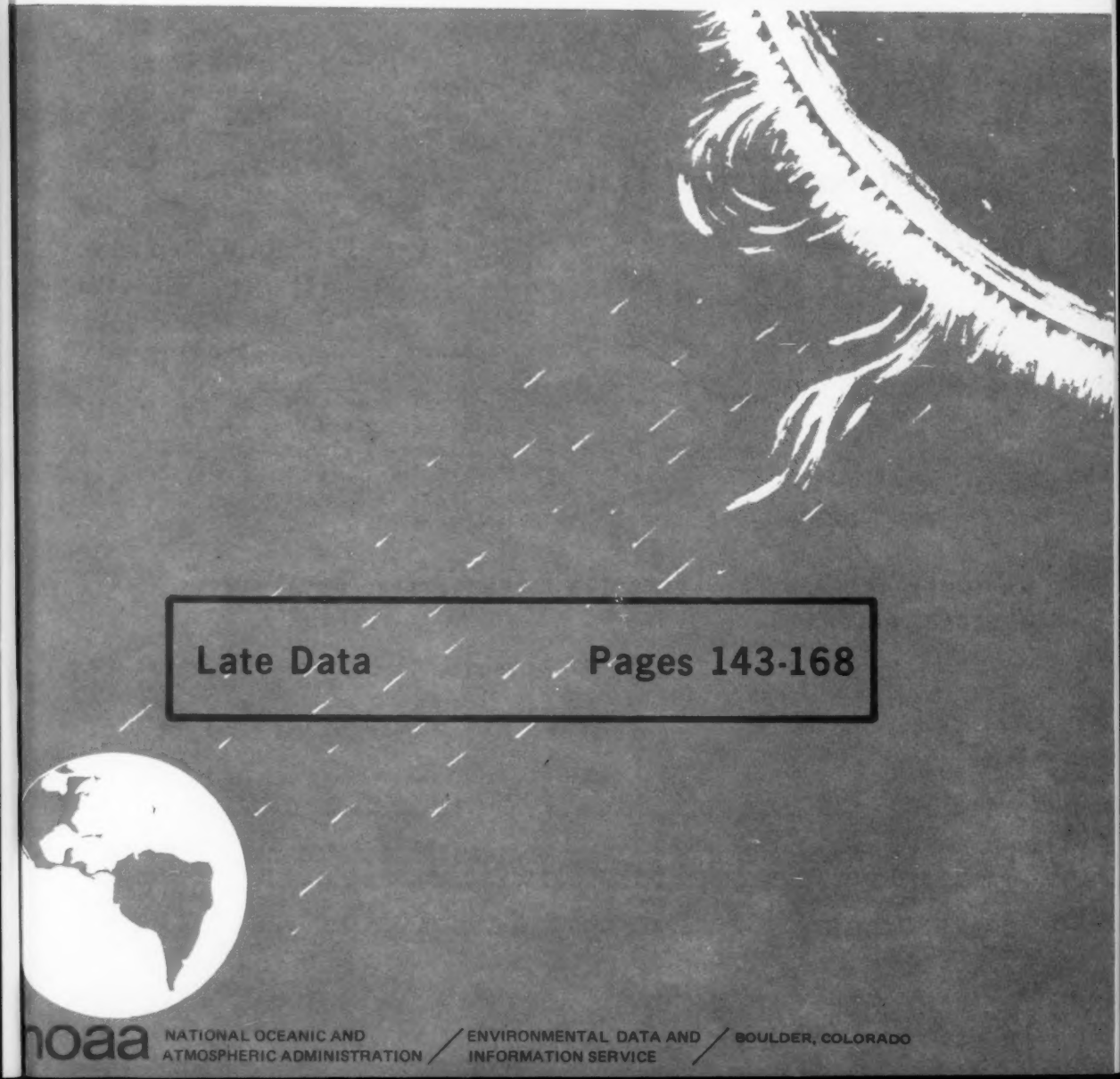
P-A STACKS

MAY 22 1980

Solar-Geophysical Data prompt reports

Data for March 1980 -- February 1980

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980



Late Data **Pages 143-168**

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Solar - Geophysical Data

NO. 428 APRIL 1980

Part I (Prompt Reports)

DATA FOR
MARCH 1980
FEBRUARY 1980

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SOLAR-GEOPHYSICAL DATA

No. 428

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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DETAILED COVERAGE FOR 1979-80 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1980 Jan	Feb	Mar
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C.4k	Solar Radio Spectral Obs. (Learmonth)					422A149	423A143		425A125		427A126	428A116	
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F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419A153	420A155	421A158	422A165	423A161	424A146	425A143	426A132	427A147	428A134	
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Notes:

"418A 48" listed under 1979 Apr means that the sunspot drawings for April 1979 were contained in *Solar-Geophysical Data* Number 418 - Part I, beginning on page 48.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 428 Part I (Prompt)

MARCH 1980 DATA

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ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
MARCH 1980

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

27 MARCH 1980 PRESTO BOULDER 27/1500Z SOFLARE M2/1N 27/1233Z PROBABLY FROM N26E75
DURATION 116 MINUTES.
TENFLARE 715 FLUX UNITS 27/1233Z DURATION 65 MINUTES.

BOULDER 27/1916Z SOFLARE M5/1B 27/1835Z N22E60 DURATION 14 MINUTES.
TENFLARE 390 FLUX UNITS 27/1830Z IN PROGRESS.

29 MARCH 1980 PRESTO BOULDER 29/0625Z TENFLARE 29/0512Z 2300 FLUX UNITS DURATION 11 MINUTES
245 MHZ RADIO BURST 29/0512Z 610 FLUX UNITS DURATION
11 MINUTES.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
061	01	29	226	185	008	N08W86	0	0	0		01	N08W86	Q	SOLQUIET
						S10W39	0	0	0			S10W39	E	MAGQUIET
						S24E06	1	1	0			S24E06	E	
						S13E17	0	0	0			S13E17	E	
						S18E31	1	0	0			S18E31	Q	
						N05W21	0	0	0			N05W21	Q	
						N01E32	2	0	0			N01E32	Q	
						N15E40	0	0	0			N15E40	Q	
						N03E31	0	0	0			N03E31	Q	
						S09W86	0	0	0			S09W86	E	
						N11W28	0	0	0			N11W28	Q	
						S19E40	1	0	0			S19E40	Q	
						S27W54	2	0	0			S27W54	E	
						S10W02	0	0	0			S10W02	Q	
						N24E20	0	0	0			N24E20	Q	
062	02	01	209	179	005	S25W68	2	0	0		02	S25W68	E	SOLQUIET
						S09W52	0	0	0			S09W52	Q	MAGQUIET
						N11W44	0	0	0			N11W44	Q	
						N05W32	0	0	0			N05W32	Q	
						S10W16	0	0	0			S10W16	Q	
						S24W07	1	0	0			S24W07	Q	
						S12E01	1	0	0			S12E01	E	
						N23E07	0	0	0			N23E07	Q	
						S17E17	0	0	0			S17E17	Q	
						N03E18	0	0	0			N03E18	E	
						N01E20	0	0	0			N01E20	Q	
						S20E29	0	0	0			S20E29	Q	
						N17E30	0	0	0			N17E30	Q	
						N10E66	0	0	0			N10E66	Q	
						S09E78	0	0	0			S09E78	Q	
063	03	02	203	176	003	S09W66	0	0	0		03	S09W66	Q	SOLQUIET
						S25W20	0	0	0			S25W20	Q	MAGQUIET
						S12W12	0	0	0			S12W12	Q	
						S10E04	1	0	0			S10E04	E	
						N05W46	0	0	0			N05W46	Q	
						N01E05	2	0	0			N01E05	E	
						N18E21	1	0	0			N18E21	E	
						N03E05	0	0	0			N03E05	Q	
						S26W80	3	1	0			S26W80	Q	
						N22W07	0	0	0			N22W07	Q	
						N06E53	0	0	0			N06E53	Q	
						S11E70	0	0	0			S11E70	Q	
						N17E17	2	0	0			N17E17	E	
						S10E08	0	0	0			S10E08	Q	
064	04	03	190	176	005	S09W78	0	0	0		04	S09W78	Q	SOLQUIET
						S25W32	0	0	0			S25W32	E	MAGQUIET
						S13W23	1	0	0			S13W23	Q	03/2215Z STRATWARM ALERT /TUESDAY/
						S18W08	0	0	0			S18W08	Q	STRATWARM EXISTS. WARM AIR OVER
						N04W61	0	0	0			N04W61	Q	POLAR REGION. ANTICYCLONE MOVING
						S01W05	1	0	0			S01W05	Q	NORTHWARD.
						N18E09	0	0	0			N18E09	Q	
						N03W07	0	0	0			N03W07	Q	
						S26W94	1	0	0			S26W94	E	
						N10E40	1	0	0			N10E40	Q	
						S09E53	0	0	0			S09E53	Q	
						N13E02	0	0	0			N13E02	Q	
						S12E60	0	0	0			S12E60	E	
						N09E65	0	0	0			N09E65	Q	
065	05	04	192	180	008	S26W45	1	0	0		05	S26W45	E	SOLQUIET
						S14W42	0	0	0			S14W42	Q	MAGQUIET
						S19W21	0	0	0			S19W21	Q	STRATWARM ALERT /WEDNESDAY/ MAJOR
						S01W23	0	0	0			S01W23	Q	STRATOSPHERIC WARMING IN PROGRESS.
						N17W07	0	0	0			N17W07	Q	
						N02W22	0	0	0			N02W22	Q	
						N11E26	0	0	0			N11E26	Q	
						S10E42	0	0	0			S10E42	Q	
						S12E47	0	0	0			S12E47	E	
						N10E49	0	0	0			N10E49	Q	
						N14E76	0	0	0			N14E76	Q	
						S19W09	0	0	0			S19W09	Q	
						N24W31	0	0	0			N24W31	Q	
						N29E01	0	0	0			N29E01	Q	
066	06	05	189	175	006	S25W57	2	0	0		06	S25W57	E	SOLQUIET
						S12W53	0	0	0			S12W53	Q	MAGQUIET
						S18W34	1	0	0			S18W34	Q	STRATWARM ALERT /THURSDAY/ MAJOR
						N01W34	0	0	0			N01W34	Q	STRATOSPHERIC WARMING IN PROGRESS.
						N17W19	0	0	0			N17W19	Q	
						N03W33	0	0	0			N03W33	Q	
						N10E14	0	0	0			N10E14	Q	
						S10E26	0	0	0			S10E26	Q	
						S15E33	0	0	0			S15E33	E	
						N09E36	0	0	0			N09E36	Q	
						N12E63	0	0	0			N12E63	Q	
						S18W23	0	0	0			S18W23	Q	
						N29W12	0	0	0			N29W12	Q	

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067	07	06	199	172	008	S24W74	1	0	0		07	S24W74	Q	SOLQUIET
						S12W67	0	0	0			S12W67	Q	MAGQUIET
						N04W48	1	0	0			N04W48	Q	STRATWARM ALERT /FRIDAY/ WARMING
						S18W47	0	0	0			S18W47	Q	PEAKED AROUND MARCH 1 FURTHER
						N14W38	1	0	0			N14W38	E	DEVELOPMENT POSSIBLE WITH EASTWARD
						S17W38	0	0	0			S17W38	Q	MOVING ANTICYCLONE REINFORCING
						N13W32	0	0	0			N13W32	Q	ALASKAN HIGH.
						N12W27	0	0	0			N12W27	Q	
						N28W26	0	0	0			N28W26	Q	
						S09E11	0	0	0			S09E11	Q	
						S13E19	0	0	0			S13E19	E	
						N09E22	0	0	0			N09E22	Q	
						N11E45	0	0	0			N11E45	Q	
						N12E74	0	0	0			N12E74	Q	
068	08	07	155	169	008	S15W82	3	0	0		08	S15W82	E	SOLQUIET
						S20W59	0	0	0			S20W59	Q	MAGQUIET
						N02W63	1	0	0			N02W63	Q	STRATWARM ALERT /SATURDAY/ MAJOR
						S11W00	0	0	0			S11W00	Q	STRATOSPHERIC WARMING IN PROGRESS.
						N18W48	2	0	0			N18W48	E	
						S12E08	1	0	0			S12E08	E	
						N11E08	0	0	0			N11E08	Q	
						S19W50	0	0	0			S19W50	Q	
						N12E32	0	0	0			N12E32	Q	
						N27W42	0	0	0			N27W42	Q	
						N15E62	0	0	0			N15E62	Q	
						S15E77	0	0	0			S15E77	Q	
069	09	08	139	167	007	S19W73	0	0	0		09	S19W73	Q	SOLQUIET
						N02W76	0	0	0			N02W76	Q	MAGQUIET
						S11W14	0	0	0			S11W14	Q	
						N18W61	3	0	0			N18W61	E	
						S12W07	1	0	0			S12W07	E	
						N11W07	0	0	0			N11W07	Q	
						S18W65	0	0	0			S18W65	Q	
						N27W56	0	0	0			N27W56	Q	
						N15E51	0	0	0			N15E51	Q	
						S17E65	0	0	0			S17E65	Q	
070	10	09	153	164	008	S19W84	0	0	0		10	S19W84	Q	SOLQUIET
						N03W89	0	0	0			N03W89	Q	MAGQUIET
						S11W27	0	0	0			S11W27	Q	
						N17W75	2	0	0			N17W75	E	
						S11W20	0	0	0			S11W20	E	
						N10W14	0	0	0			N10W14	Q	
						S18W78	0	0	0			S18W78	Q	
						N15E37	2	0	0			N15E37	E	
						S18E52	0	0	0			S18E52	Q	
						S19W20	0	0	0			S19W20	Q	
						S14E73	0	0	0			S14E73	Q	
071	11	10	069	156	004	S10W32	1	0	0		11	S10W32	Q	SOLQUIET
						N15E21	0	0	0			N15E21	Q	MAGALERT MINOR 11/12
						S17E39	1	0	0			S17E39	Q	
						S12E60	1	0	0			S12E60	Q	
						S10E74	0	0	0			S10E74	Q	
072	12	11	085	150	005	S11W46	1	0	0	PRESTO MOSCOW 11/0700Z A 1N FLARE AT 11/0430Z DURATION 30 MINUTES.	12	S11W46	Q	SOLQUIET
						N13E07	0	0	0			N13E07	Q	MAGALERT MINOR 12/13
						S17E27	1	0	0			S17E27	Q	
						S12E46	0	0	0			S12E46	Q	
						S11E58	0	0	0			S11E58	Q	
						S29E22	0	0	0			S29E22	Q	
073	13	12	109	140	004	S11W59	0	0	0		13	S11W59	Q	SOLQUIET
						N14W06	0	0	0			N14W06	Q	MAGALERT MINOR 13
						S17E12	1	0	0			S17E12	Q	
						S12E33	0	0	0			S12E33	Q	
						S11E45	0	0	0			S11E45	Q	
						S28E14	0	0	0			S28E14	Q	
						S18E18	0	0	0			S18E18	Q	
						N18E24	0	0	0			N18E24	Q	
074	14	13	091	143	008	S11W74	3	0	0		14	S11W74	Q	SOLQUIET
						N15W20	0	0	0			N15W20	Q	MAGNIL
						S17W04	5	0	0			S17W04	E	
						S12E20	1	0	0			S12E20	Q	
						S11E31	1	0	0			S11E31	Q	
						N18E37	0	0	0			N18E37	Q	
						S21E77	0	0	0			S21E77	Q	
075	15	14	108	143	005	S11W89	7	0	0		15	S11W89	E	SOLQUIET
						N15W33	0	0	0			N15W33	Q	MAGQUIET
						S17W18	2	0	0			S17W18	E	
						S12E05	0	0	0			S12E05	Q	
						S11E18	0	0	0			S11E18	Q	
						N17W06	0	0	0			N17W06	Q	
						S18E23	1	0	0			S18E23	Q	
						S22E65	0	0	0			S22E65	Q	

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076	16	15	136	141	005	N13W47	0	0	0		16	N13W47	Q	SOLQUIET
						S18W25	1	0	0			S18W25	E	MAGQUIET
						S11W08	1	0	0			S11W08	Q	
						S11E05	0	0	0			S11E05	Q	
						N17W18	0	0	0			N17W18	Q	
						N19E11	0	0	0			N19E11	Q	
						S06W35	0	0	0			S06W35	Q	
						S03E66	0	0	0			S03E66	Q	
						S21W03	0	0	0			S21W03	Q	
						S23E07	0	0	0			S23E07	Q	
						S20E65	0	0	0			S20E65	Q	
077	17	16	064	139	004	S17W45	0	0	0		17	S17W45	Q	SOLQUIET
						S03E54	0	0	0			S03E54	Q	MAGQUIET
						S23E53	0	0	0			S23E53	Q	
						N18W39	0	0	0			N18W39	Q	
						S26E38	0	0	0			S26E38	Q	
078	18	17	092	144	005	S17W56	0	0	0		18	S17W56	Q	SOLQUIET
						S12W21	0	0	0			S12W21	Q	MAGQUIET
						S22E27	0	0	0			S22E27	Q	
						S04E42	0	0	0			S04E42	Q	
						N17W48	0	0	0			N17W48	Q	
						S26E23	0	0	0			S26E23	Q	
						S27E75	0	0	0			S27E75	Q	
079	19	18	113	149	005	S11W34	0	0	0		19	S11W34	Q	SOLQUIET
						S26E09	4	0	0			S26E09	E	MAGQUIET
						S25E58	1	0	0			S25E58	Q	
						N14E61	1	0	0			N14E61	Q	
						N26E65	0	0	0			N26E65	Q	
						S18W43	3	0	0			S18W43	E	
						S02E23	0	0	0			S02E23	Q	
						N20E46	1	0	0			N20E46	Q	
080	20	19	160	164	008	S18W72	0	0	0		20	S18W72	Q	SOLALERT 20/XX
						S27W04	6	0	0			S27W04	E	MAGQUIET
						S25E44	1	0	0			S25E44	Q	
						N15E47	1	0	0			N15E47	Q	
						N25E52	0	0	0			N25E52	Q	
						S19W55	4	0	0			S19W55	E	
						S03E09	0	0	0			S03E09	Q	
						N20E34	0	0	0			N20E34	Q	
						N05E73	2	0	0			N05E73	Q	
						S28E68	1	0	0			S28E68	Q	
081	21	20	153	163	004	S26W18	7	0	0		21	S26W18	E	SOLNIL
						S25E29	0	0	0			S25E29	Q	MAGQUIET
						N15E33	1	0	0			N15E33	Q	
						N26E40	0	0	0			N26E40	Q	
						S19W71	1	0	0			S19W71	E	
						S03W04	3	0	0			S03W04	Q	
						N05E59	1	0	0			N05E59	Q	
						S28E54	2	0	0			S28E54	Q	
						S21W50	0	0	0			S21W50	Q	
082	22	21	175	164	014	S26W28	3	0	0		22	S26W28	E	SOLQUIET
						S25E16	0	0	0			S25E16	Q	MAGQUIET
						N14E20	0	0	0			N14E20	Q	
						N26E25	0	0	0			N26E25	Q	
						S19W84	0	0	0			S19W84	Q	
						N05E45	0	0	0			N05E45	E	
						S26W26	0	0	0			S26W26	Q	
						S21W14	0	0	0			S21W14	Q	
						N23E72	0	0	0			N23E72	Q	
						S27E28	0	0	0			S27E28	Q	
						S28E52	1	0	0			S28E52	E	
						S08W10	0	0	0			S08W10	Q	
083	23	22	159	164	014	S27W42	3	0	0		23	S27W42	E	SOLQUIET
						S27E06	2	0	0			S27E06	Q	MAGQUIET
						N13E08	1	0	0			N13E08	Q	
						N26E13	0	0	0			N26E13	Q	
						N05E32	1	0	0			N05E32	E	
						S28E16	0	0	0			S28E16	Q	
						N23E59	0	0	0			N23E59	Q	
						S28E40	1	0	0			S28E40	Q	
						S31W74	1	0	0			S31W74	Q	
						S28E80	1	0	0			S28E80	Q	

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						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
084	24	23	181	173	007	S27W56	4	0	0		24	S27W56	E	SOLQUIET
						S26W08	1	0	0			S26W08	Q	MAGQUIET
						N14W07	0	0	0			N14W07	Q	
						N26W01	0	0	0			N26W01	Q	
						N06E19	0	0	0			N06E19	E	
						S27E02	1	0	0			S27E02	Q	
						N24E45	0	0	0			N24E45	Q	
						S28E24	0	0	0			S28E24	Q	
						S27E69	0	0	0			S27E69	Q	
						N09E66	0	0	0			N09E66	Q	
						N25E71	0	0	0			N25E71	Q	
085	25	24	176	173	007	S25W65	1	0	0		25	S25W65	E	SOLQUIET
						S23W22	0	0	0			S23W22	Q	MAGQUIET
						N13W19	1	0	0			N13W19	E	
						N26W13	0	0	0			N26W13	Q	
						N06E04	2	0	0			N06E04	Q	
						S26W14	1	0	0			S26W14	Q	
						N22E31	1	0	0			N22E31	Q	
						S27E11	0	0	0			S27E11	Q	
						S28E56	1	0	0			S28E56	Q	
						N10E57	0	0	0			N10E57	Q	
						N25E57	1	0	0			N25E57	Q	
						N17E66	0	0	0			N17E66	Q	
086	26	25	230	190	004	S27W77	2	0	0		26	S27W77	E	SOLQUIET
						N13W32	4	0	0			N13W32	E	MAGQUIET
						N26W26	1	0	0			N26W26	Q	
						N06W04	1	0	0			N06W04	E	
						S26W26	4	0	0			S26W26	Q	
						N23E19	0	0	0			N23E19	Q	
						S27W04	1	0	0			S27W04	Q	
						S26E45	0	0	0			S26E45	E	
						N12E38	2	0	0			N12E38	Q	
						N25E46	1	0	0			N25E46	E	
						N13E53	3	0	0			N13E53	E	
						N15E38	0	0	0			N15E38	Q	
						N09E52	0	0	0			N09E52	Q	
						S12E79	0	0	0			S12E79	Q	
087	27	26	232	186	019	S28W88	3	0	0		27	S28W88	E	SOLQUIET
						S26W46	0	0	0			S26W46	Q	MAGQUIET
						N12W46	0	0	0			N12W46	Q	
						N05W20	0	0	0			N05W20	E	
						S27W38	2	0	0			S27W38	Q	
						N22E06	2	0	0			N22E06	E	
						S28W16	1	0	0			S28W16	Q	
						S27E33	0	0	0			S27E33	E	
						N10E25	1	0	0			N10E25	E	
						N25E34	0	0	0			N25E34	Q	
						N15E40	4	0	0			N15E40	Q	
						N15E24	0	0	0			N15E24	Q	
						S12E69	2	0	0			S12E69	Q	
						N25E72	0	0	0			N25E72	Q	
088	28	27	338	209	006	S24W59	1	0	0	PRESTO BOULDER	28	S24W59	Q	SOLALERT 28/XX
						N14W59	0	0	0	27/1500Z SOFLARE		N14W59	Q	MAGQUIET
						N07W33	0	0	0	M2/1N 27/1233Z,		N07W33	Q	
						S25W53	2	0	0	PROBABLY N26E75 DU-		S25W53	Q	
						S27W30	1	0	0	RATION 116 MINUTES.		S27W30	Q	
						S28E19	0	0	0	TENFLARE 715 FLUX		S28E19	E	
						N09E12	2	0	0	UNITS 27/1233Z DU-		N09E12	E	
						N23E23	1	0	0	RATION 65 MINUTES.		N23E23	E	
						N14E27	3	0	0	PRESTO BOULDER		N14E27	E	
						N14E11	0	0	0	27/1916Z SOFLARE		N14E11	E	
						N09E24	0	0	0	M5/1B, 27/1835Z		N09E24	Q	
						S14E54	0	0	0	N22E60, DURATION		S14E54	E	
						N24E61	4	2	0	14 MINUTES. TEN-		N24E61	A	
						S27E06	0	0	0	FLARE 390 FLUX UNITS		S27E06	Q	
						S17E14	0	0	0	27/1838Z IN PROGRESS.		S17E14	Q	
						S10E61	0	0	0			S10E61	Q	
089	29	28	248	204	006	N13W69	0	0	0		29	N13W69	Q	SOLALERT 29/XX
						N05W49	0	0	0			N05W49	Q	MAGQUIET
						S26W72	2	0	0			S26W72	E	
						S28W45	1	0	0			S28W45	Q	
						S27E08	0	0	0			S27E08	E	
						N08W03	7	1	0			N08W03	E	
						N24E09	1	0	0			N24E09	E	
						N14E13	2	0	0			N14E13	E	
						N13W03	3	1	0			N13W03	E	
						N09E10	0	0	0			N09E10	Q	
						S13E40	0	0	0			S13E40	Q	
						N26E46	2	1	0			N26E46	A	
						S13W06	0	0	0			S13W06	Q	
						S08E48	0	0	0			S08E48	Q	

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090	30	29	232	201	008	S22W85	1	0	0	PRESTO BOULDER	30	S22W85	Q	SOLALERT 30/XX
						N05W62	0	0	0	29/0625Z TENFLARE		N05W62	Q	MAGQUIET
						S25W80	0	0	0	29/0512Z 2300 FLUX		S25W80	Q	
						S28W55	1	0	0	UNITS DURATION 11		S28W55	Q	
						S27W06	1	0	0	MINUTES 245 MHZ		S27W06	Q	
						N08W19	7	1	0	RADIO BURST		N08W19	E	
						N24W04	0	0	0	29/0512Z 610 FLUX		N24W04	Q	
						N14W00	2	0	0	UNITS DURATION 11		N14W00	Q	
						N14W16	3	0	0	MINUTES.		N14W16	E	
						N10W03	7	0	0			N10W03	E	
						S13E27	0	0	0			S13E27	Q	
						N26E31	11	0	0			N26E31	A	
						S12E74	0	0	0			S12E74	Q	
						N08E62	0	0	0			N08E62	Q	
091	31	30	246	199	009	S28W20	1	0	0		31	S28W20	Q	SOLALERT 31/02
						N09W31	0	0	0			N09W31	Q	MAGQUIET
						N24W16	0	0	0			N24W16	Q	
						N12W15	5	0	0			N12W15	E	
						N15W30	2	0	0			N15W30	E	
						S14E13	0	0	0			S14E13	Q	
						N25E21	7	0	0			N25E21	A	
						S09E20	0	0	0			S09E20	Q	
						S12E62	0	0	0			S12E62	Q	
						N07E47	0	0	0			N07E47	Q	
						S24E08	0	0	0			S24E08	Q	
092	01	31	187	190	014	S28E33	0	0	0		01	S28E33	E	SOLALERT MINOR 01
						N09W45	0	0	0			N09W45	Q	MAGQUIET
						N24W30	0	0	0			N24W30	Q	
						N11W29	2	0	0			N11W29	E	
						N14W43	1	0	0			N14W43	E	
						S13W00	0	0	0			S13W00	Q	
						N26E07	4	0	0			N26E07	E	
						S08E07	1	0	0			S08E07	Q	
						S11E48	0	0	0			S11E48	Q	
						N07E33	0	0	0			N07E33	Q	

A=Active C=Caution D=Doubtful E=Eruptive MF=Major Flare OG=Other Groups P=Proton Q=Quiet

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

DAY	1979 FINAL JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1980 PROVISIONAL JAN	FEB	MAR
1	158	116	116	131	100	121	158	115	165	213	224	122	153	200	101
2	158	113	138	134	106	145	160	96	141	187	157	156	158	187	160
3	191	138	141	135	103	154	205	121	148	167	155	187	148	185	151
4	157	123	142	138	112	178	219	110	157	156	172	218	173	182	136
5	146	134	135	109	113	207	232	93	139	168	166	232	190	170	130
6	173	146	144	91	122	226	249	104	139	168	203	206	207	215	132
7	163	144	146	77	140	222	223	110	170	179	240	212	210	240	120
8	172	142	143	69	157	220	219	132	192	190	200	262	225	230	101
9	165	139	146	61	162	224	191	115	190	210	279	280	262	172	103
10	163	137	140	75	145	205	163	92	177	178	302	260	224	140	69
11	157	137	156	94	140	186	155	84	167	183	295	242	245	140	67
12	159	138	170	107	158	199	145	87	156	189	248	261	210	135	70
13	151	152	169	113	163	172	142	91	175	201	183	235	181	131	71
14	157	163	159	116	203	149	127	112	186	213	218	230	178	146	68
15	170	161	155	117	207	117	121	135	177	198	186	225	146	168	52
16	164	159	130	119	187	103	107	115	163	185	166	215	166	163	36
17	164	160	142	107	184	122	109	124	155	214	238	180	160	132	67
18	146	162	142	98	148	126	109	143	177	224	172	151	130	122	63
19	138	166	138	79	109	110	135	176	195	221	174	138	110	129	119
20	177	181	131	68	107	111	158	187	191	214	153	126	115	139	108
21	192	171	134	68	114	124	151	210	184	209	124	124	121	114	105
22	183	155	140	79	121	108	152	216	178	191	116	111	123	99	130
23	200	127	139	76	117	96	154	206	219	179	142	116	124	100	149
24	209	99	110	72	119	90	143	203	236	161	162	130	120	122	175
25	209	88	114	85	124	120	144	201	252	153	155	143	107	121	176
26	173	108	114	110	123	132	142	182	261	145	141	116	127	152	191
27	167	97	117	125	110	112	146	189	256	136	115	93	128	175	205
28	157	95	114	132	110	120	132	174	239	142	119	90	130	197	221
29	153		123	132	113	124	140	158	235	104	98	121	122	181	191
30	149		135	120	96	154	150	150	233	190	116	139	145		102
31	130		147		120		144	168		223		135	174		183
MEAN	166.6	137.5	138.0	101.5	134.4	149.5	159.4	142.2	188.4	186.2	183.3	176.3	162.2	159.3	126.5

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

DAY	1979 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1980 JAN	FEB	MAR
1	194.1*	185.8	168.5	202.6*	180.4	189.5	186.3	149.1	175.8	212.8	211.6	161.9	189.1	212.6*	175.7
2	200.1	185.6	170.7	203.4	179.2	206.8*	200.9*	143.9*	180.1	211.5	209.5	172.8*	199.9	217.9	172.9
3	203.5*	187.4*	173.3	194.2	164.3	216.1*	213.4	145.1	180.8	204.7	207.5	195.1*	211.9*	225.7	170.2*
4	192.7*	187.7	181.4	183.5	176.8	228.8*	218.1	141.7	175.3*	197.7*	214.2	221.8	212.4*	231.7	172.7*
5	194.9	197.4	180.1*	179.3	169.6	230.2	204.5	141.6	177.1	192.8*	235.5	223.4*	207.7	218.9	171.8
6	190.9	206.5	182.4	176.3	171.1*	230.1	211.3	149.5	180.4*	195.5	273.2*	223.4	222.1	221.7	169.4
7	186.2	203.4	183.1*	166.7	178.8	230.1	207.2	151.1	186.3	197.8	286.9*	222.6	228.8	223.9*	166.3
8	200.1	207.2*	178.9	169.8*	182.4*	242.7	206.7	152.7	183.6	200.3	310.1	228.9*	228.1*	218.7	164.9
9	192.6	198.7	181.4	169.6	181.3	247.4*	197.9*	157.3	187.4	209.5	314.4*	232.4	240.9*	208.2*	161.3
10	186.2	198.4*	180.6	173.8	174.7	239.9	185.9	152.1*	184.6	208.7	367.8*	230.3	253.8*	204.6*	153.9
11	179.5	202.2*	181.7*	170.8*	176.6	229.6	178.6	154.4	181.5*	211.8	325.7*	230.6*	255.7*	213.7	147.8
12	174.5	195.4	188.7	174.5	184.2	208.3	170.1	144.8	181.7	216.4	294.4	232.3	245.1*	213.7	138.6
13	193.9	195.4	186.3	175.8	186.6	193.7	161.4	155.8	186.1	239.1	272.7	231.7	221.6	217.9	144.6
14	200.8*	204.2*	189.4	170.9	182.8	185.7	154.7*	158.2*	192.6*	236.4	256.4	238.3	203.8	201.8	141.2
15	192.1*	205.8*	181.3	168.1	181.9	176.8	151.1	167.6	193.8	238.7	239.7*	231.8	200.8	201.2*	139.3
16	189.9*	209.2	183.5*	171.7	176.4	167.5	143.6	164.8	196.3*	232.3	230.6	216.3	188.6	200.2	137.3
17	175.7	213.1	177.7	168.8	187.7	158.1	142.7	165.8	202.7*	226.8	231.8	202.2	186.9	182.8*	142.9
18	177.6	237.7	188.6*	158.7	171.3*	152.6	141.2	180.8	215.7	236.8	231.9	187.4	177.5	180.8*	147.4
19	187.8	237.8	177.6	159.4	161.5	146.2	143.6	186.4	218.1*	237.3*	214.8	183.8	164.4	177.3	162.3
20	197.2	230.1*	184.1	156.1	155.6	151.5	146.6	204.2*	213.9*	236.7*	205.9	180.8*	156.5	174.7	162.1
21	210.3	225.1	182.2	161.5	155.7	148.9	143.7*	207.6*	210.4	230.1	189.8	176.7*	153.4	169.6	162.4
22	226.9	223.3	181.1	159.7*	156.5*	141.1	155.7	223.2	216.5	221.9	182.5	175.3	158.2*	167.3	162.5
23	225.1	196.8	188.5	162.3	156.8	139.8	163.1*	218.6	224.2*	214.9*	183.2	168.6	166.7	160.1	172.4*
24	208.5	182.8	188.3	161.9	159.2*	141.2	168.6	225.2	230.7	225.6*	175.2*	160.2	171.1*	157.2*	172.4
25	206.1	167.5	188.2	172.5	153.3*	147.8	164.5	229.3*	235.5	215.2	165.8*	162.8	171.3*	165.7	182.5*
26	192.9	166.8	200.2	182.8	149.1	153.7	165.6	223.3	229.9*	202.9	161.6	159.7	178.8*	169.8	185.2
27	205.4	162.7	187.9	195.1*	149.4	158.5	159.1*	212.8	220.7*	211.2	155.7	153.6*	190.6*	173.2	195.3*
28	209.6	163.6	180.6	192.1*	149.2	159.1	158.1	214.2	233.8	218.8	150.1	163.1	194.8	171.7*	203.5
29	209.3	.	191.4	185.7	150.2	166.9	156.7	197.6	225.8	214.8	154.8	174.8	197.8	176.7*	199.9
30	194.1*	.	186.6	185.2*	158.4	176.7*	160.3	187.8	231.9	213.7*	152.2	185.5	197.9	.	194.3*
31	193.7	.	201.4*	.	174.9	.	152.4	179.9	.	214.9*	.	188.9	213.9*	.	187.2*
MEAN	196.5	199.1	184.8	175.8	168.9	186.8	171.4	177.8	202.3	216.4	226.8	197.2	199.6	195.1	166.5

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

MARCH 1980

MAR 1980	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS R_Z	SUNSPOT NUMBERS $R_{A'}$	OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U. AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	61	21	181	140	178.9	599	371	193	175.7	184	144		46	
2	62	22	168	137	175.9				172.9					
3	63	23	151	113	173.1*				170.2*					
4	64	24	136	107	175.5*	537	379	197	172.7*	182	151		42	
5	65	25	130	129	174.6	567	364	191	171.8	177	147		39	
6	66	26	132	125	172.0	577	372	192	169.4	176	141		41	
7	67	27	120	121	168.8	552	358	187	166.3	166	131		42	
8	68	1	101	100	167.2	484	339	186	164.9	160	133		38	
9	69	2	103	73	163.6				161.3					
10	70	3	69	58	155.9	559	360	180	153.9	157	126		40	
11	71	4	67	58	149.7	545			147.8		128		41	
12	72	5	70	65	140.3	579			138.6		120		41	
13	73	6	71	59	146.4	533	355	166	144.6	147	121		41	
14	74	7	68	59	142.8	491	331	162	141.2	141	125		37	
15	75	8	52	62	140.8	554	345	159	139.3	140	117		32	
16	76	9	36	37	138.7	568	342	165	137.3	137	122		40	
17	77	10	67	43	144.3	546	359	164	142.9	143	124		36	
18	78	11	63	56	148.7	574	341	194	147.4	170	131		40	
19	79	12	119	109	163.6				162.3					
20	80	13	108	99	163.4	561	331	181	162.1	160	126		36	
21	81	14	105	98	163.5	529			162.4					
22	82	15	130	122	163.6	538			162.5					
23	83	16	149	150	173.4*	575	344	189	172.4*	173	134		40	
24	84	17	175	157	173.4	564	377	195	172.4	177	139		38	
25	85	18	176	163	183.4*	551	342	192	182.5*	176	155		43	
26	86	19	191	168	185.9	575	351	195	185.2	184	151		43	
27	87	20	205	160	196.1*	582	388	217	195.3*	208	171		42	
28	88	21	221	165	204.1	580	393	221	203.5	201	167		42	
29	89	22	191	182	200.5	558	358	213	199.9	194	155		49	
30	90	23	182	167	194.7*	557	361	217	194.3*	197	155		42	
31	91	24	183	160	187.6*	563	363	205	187.2*	190	146		45	
MEAN			126.5	111.0	168.1	555	358	189	166.5	171	138		40	

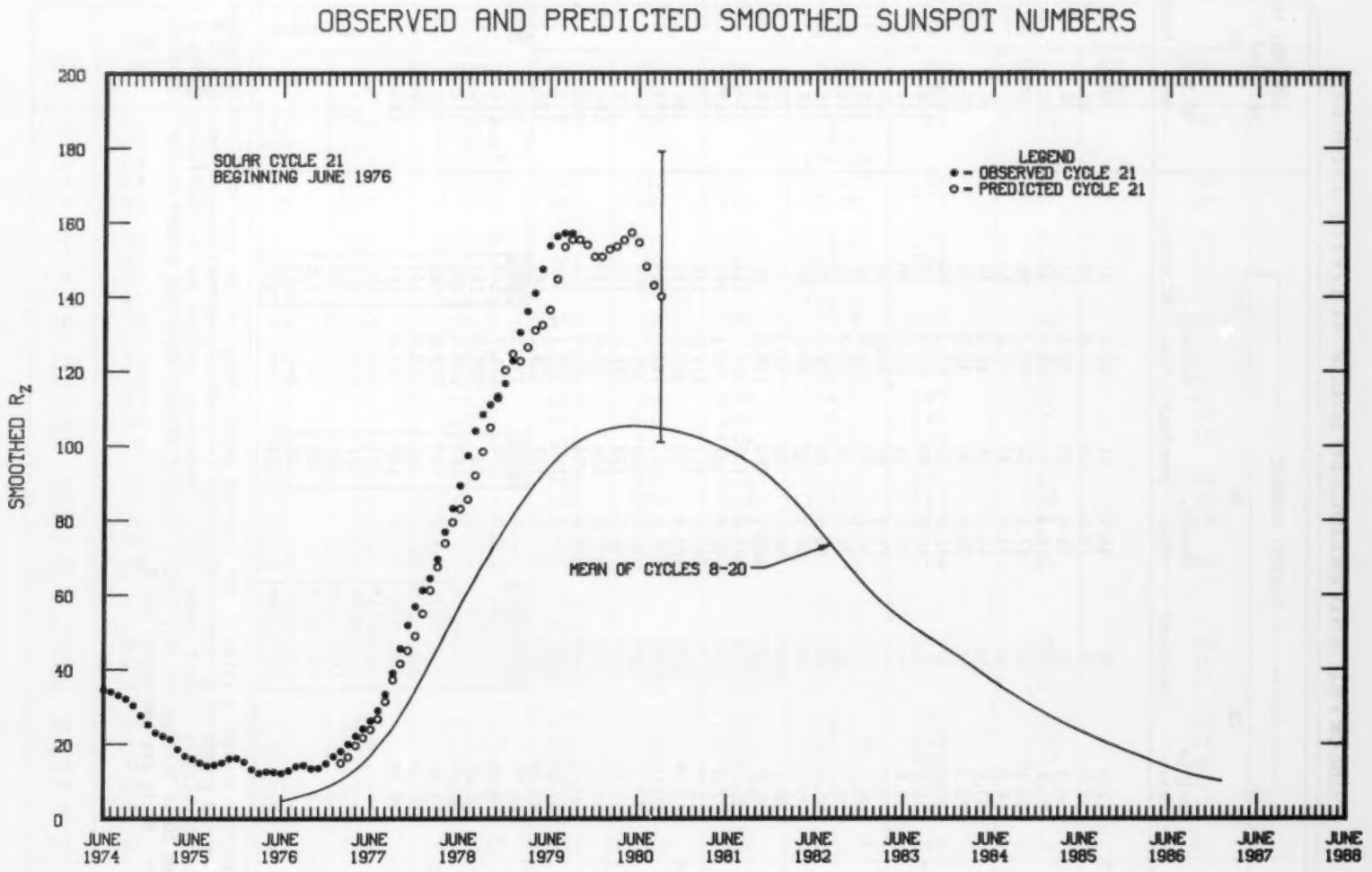
* Adjusted for burst.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Apr 77	12.9	22	10.7	21	22.5	27	78.2	82
May	18.6	24	16.0	23	25.9	29	81.4	84
Jun	38.5	26	34.4	25	40.1	31	94.5	86
Jul	21.4	29	18.3	27	28.4	33	83.7	88
Aug	30.1	33	27.6	32	31.3	36	86.4	91
Sep	44.0	39	41.9	37	47.0	40	100.9	95
Oct	43.8	46	45.5	44	42.0	45	96.3	99
Nov	29.1	52	28.4	50	36.9	50	91.6	104
Dec	43.2	57	42.8	55	44.8	54	98.9	108
Jan 78	51.9	61	48.8	59	52.6	57	106.1	111
Feb	93.6	64	90.9	61	91.1	60	141.8	113
Mar	76.5	70	73.9	66	89.5	63	140.3	116
Apr	99.7	77	97.5	72	100.5	67	150.5	119
May	82.7	83	79.6	78	99.7	71	149.7	123
Jun	95.1	89	88.0	84	96.5	75	146.8	127
Jul	70.4	97*	58.1	92	84.2	82	135.2	133
Aug	58.1	104*	48.1	98	64.3	90	116.9	141
Sep	138.2	108*	128.1	103	110.4	96	159.6	146
Oct	125.1	111*	116.0	105	107.7	111	157.1	160
Nov	97.9	113*	92.8	107	98.1	113	148.2	162
Dec	122.7	117*	121.0	111	121.6	116	170.0	165
Jan 79	165.8*	123*	164.4	116	150.2	119	196.5	168
Feb	138.0*	130*	136.8	123	153.0	124	199.1	172
Mar	137.0*	136*	132.5	128	136.7	128	184.0	176
Apr	102.8*	141*	95.8	133	127.0	133	175.0	180
May	134.6*	147*	121.8	139	120.4	139	168.9	186
Jun	150.5*	154*	136.4	144	138.9	144	186.0	191
Jul	159.6*	156*	140.5	145	123.1	145	171.4	192
Aug	143.5*	157*	125.1	144	129.2	145	177.0	192
Sep	188.7*	157*	184.0	143	156.5	144	202.3	190.9
Oct	188.2*	158(±4)*	178.2	144	171.7	145	216.4	---
Nov	185.0*	159(±8)*	176.5	145	182.9	146	226.8	---
Dec	182.2*	159(±12)*	157.6	144	151.0	145	197.2	---
Jan 80	162.2*	157(±16)*	146.7	143	153.6	144	199.6	---
Feb	159.3*	155(±18)*	131.0	142	148.7	143	195.1	---
Mar	126.5*	154(±19)*	111.0	142	117.8	142	166.5	---
Apr	---	154(±24)*	---	141	---	142	---	---
May	---	153(±28)*	---	141	---	141	---	---
Jun	---	149(±31)*	---	138	---	139	---	---
Jul	---	145(±36)*	---	135	---	136	---	---
Aug	---	142(±38)*	---	132	---	133	---	---
Sep	---	140(±39)*	---	131	---	131	---	---

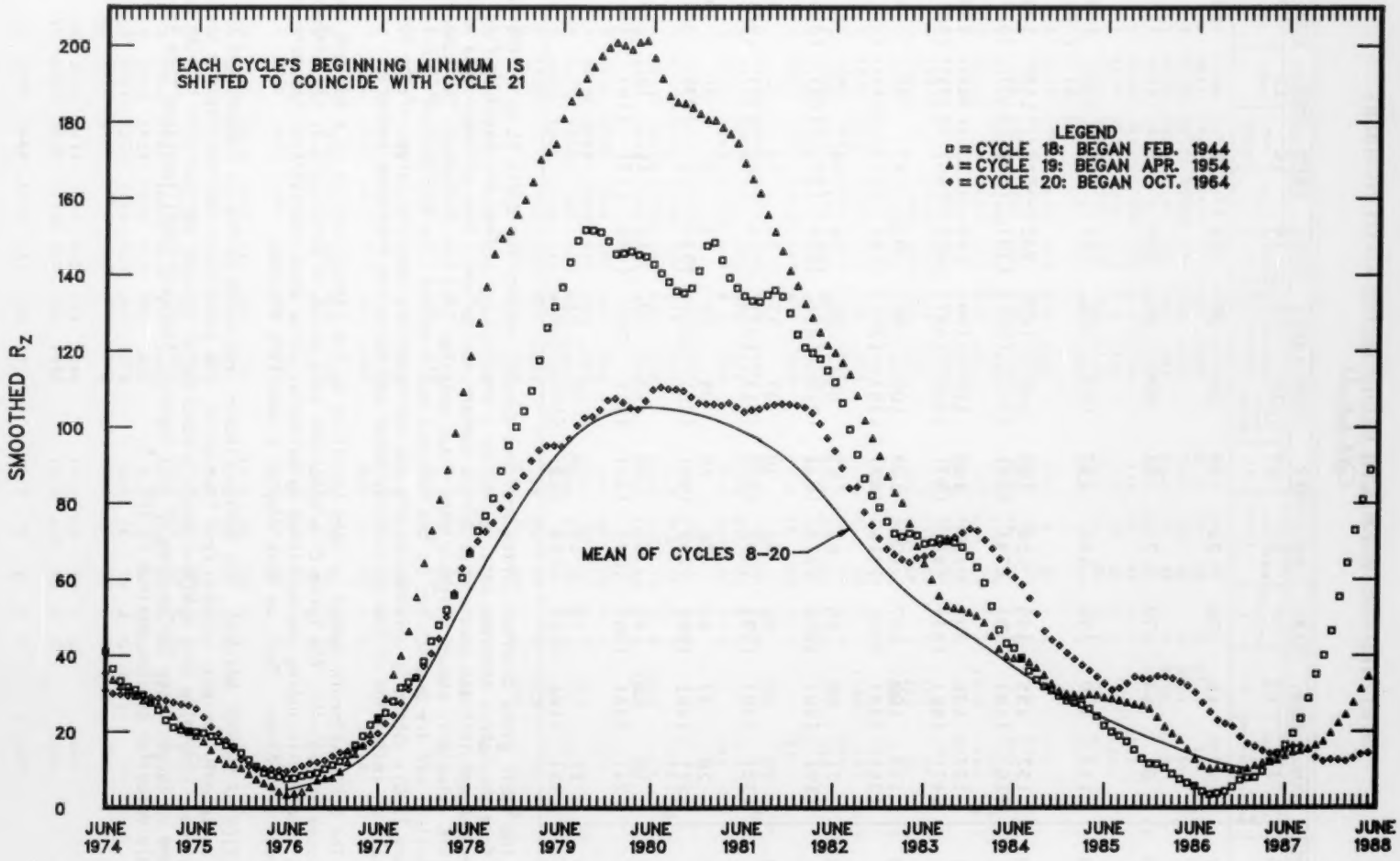
*An asterisk denotes a value of the observed monthly mean, or the observed 12-month running mean, or the predicted 12-month average that is based only on preliminary observations of the Zurich relative sunspot number (Rz). Parentheses enclose the 90% confidence limits. Hatched boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A.

* Adjusted for burst.



SUPERPOSITION OF CYCLES 18, 19, AND 20

SUPERPOSITION OF CYCLES 18, 19, AND 20



13
Mar 80

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1976	15	13	12	13	12	12	13	14	14	13	13	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	64	70	77	83	89	97	104	108	111	113	117
1979	123	130	136	141	147	154	156	157	157	159*	159	159
										(4)	(8)	(12)
1980	157	155	154	154	153	149	145	142	140	139	138	136
	(16)	(18)	(19)	(24)	(28)	(31)	(36)	(38)	(39)	(40)	(42)	(44)
1981	137	136	134	131	128	125	124	124	123	122	120	116
	(47)	(46)	(44)	(43)	(43)	(43)	(42)	(41)	(40)	(39)	(38)	(36)
1982	113	109	107	105	103	100	96	91	87	82	78	75
	(35)	(34)	(33)	(31)	(29)	(28)	(26)	(25)	(24)	(21)	(20)	(20)
1983	71	68	66	64	62	60	58	56	54	53	52	51
	(19)	(20)	(20)	(21)	(21)	(22)	(23)	(25)	(27)	(28)	(30)	(30)
1984	50	48	45	41	38	37	37	35	33	32	31	29
	(30)	(30)	(29)	(29)	(30)	(31)	(32)	(31)	(30)	(29)	(28)	(27)
1985	28	27	26	26	25	24	23	22	21	20	19	19
	(27)	(26)	(26)	(26)	(26)	(25)	(23)	(23)	(22)	(23)	(24)	(24)
1986	18	18	17	16	14	13	12	11	11	11	11	11
	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	11	12	12	13	14	16	17					
	(12)	(12)	(12)	(12)	(13)	(14)	(15)					

The table gives observed Zürich *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are included. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1980). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD issues No. 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 minimum.

*PREDICTION OF SUNSPOT MAXIMUM. The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1980) indicates that the most probable value for sunspot maximum is 159 ± 5.

Hα SOLAR FLARES

MARCH 1980

OBSERVATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				CONF.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PALE	1	0136	0141	0150	S28	W56	.836		25.9	14	SF	3	C		050		
HEND	1	0817	0823	0840	S07	W42	.665		27.2	23	SN		C	0823	100	1.4	
HEND	1	0840E	0901	0920D	S25	W60	.864		25.9	40D	SF		C	0901	56	1.3	
MONT	1	0858	0901	0905	S25	W69	.927		25.2	7	SF		C	0901	50		D
HEND	1	0932	0941	1000	S28	W03	.358		1.2	28	SF		C	0941	70	.8	H
PALE	1	2018	2019	2039	S26	W 3	.326		1.6	21	SF	3	C		027		
PALE	1	2027	2028	2030	S13	E 4	.122		2.2	3	SF	3	C		026		D
PALE	1	2313	2315	2324	S29	W66	.910		26.0	11	SN	3	C		021		
HOLL	1	2314	2316	2322	S28	W66	.910		26.0	8	SN	3	C		025		
PALE	2	0237	0240	0243	N19	E21	.551		3.7	6	SF	3	C		056		D
PALE	2	0243	0243	0249	S29	W69	.928		25.9	6	SN	3	C		053		
PALE	2	0245	0306	0333	N17	E19	.510		3.5	48	1F	3	C		256		D
MANI	2	0305E	0309	0315D	N23	E07	.515		2.7	10D	1N	3	V		320	3.9	F
HEND	2	1024E		1109	N02	E17	.331		3.7	45	SN		P	1029	156	1.7	
ATHN	2	1030E	1042	1100	N 1	E14	.279		3.5	30D	SB	3	C		080		
RAMY	2	1221	1224	1244	S21	E10	.289		3.3	23	SN	3	C		141		
HEND	2	1223E		1235D	S19	E11	.274		3.3	12D	SN		C	1223	60	.7	
HEND	2	1223E		1240	S16	E06	.183		3.0	17D	SF		C	1225	34	.4	D
HEND	2	1225		1245D	N03	E16	.325		3.7	20D	SN		C	1234	50	.5	
RAMY	2	1228	1231	1252	N 1	E15	.294		3.6	24	SN	3	C		037		
BIGB	2	1634	1636	1705	S22	W64	.893		26.9	31	1B	2	C	1636	150	3.5	
RAMY	2	1634	1637	1656	S28	W71	.939		26.4	22	SB	3	C		064		
HOLL	2	1634	1637	1653	S30	W71	.939		26.4	19	SB	2	C		061		D
PALE	2	1903	1909	1913	S30	W75	.958		26.2	10	SF	3	C		0 0		
RAMY	2	1903	1905	1913	S29	W73	.949		26.3	10	SN	3	C		036		
MANI	3	0745E	0746	0754D	S26	W85	.991		25.9	9D	SF	3	V		50	1.5	
ATHN	3	0745E	0746U	0908	S26	W80	.978		26.3	83D	SB	3	C		0 0		D
PALE	3	1942	1943	1956D	N 0	W 3	.136		3.6	14D	SF	3	C		048		
PALE	4	0337E	0346	0348D	S25	W34	.602		1.6	11D	1F	3	C		2 5		
MANI	4	0344E	0348	0415D	S25	W35	.613		1.5	31D	1F	3	V		180	2.4	EU
BIGB	4	1644E	1647U	1655D	S27	W90	.998		26.9	11D	1B	3	P	1647	70		
BIGB	4	2238	2243	2252	S27	W90	.998		27.2	14	1B	2	C	2243	70		
PALE	5	0201	0202	0241	S26	W47	.748		1.6	40	SN	3	C		123		
MANI	5	0206E	0208	0211D	S24	W49	.763		1.4	5D	SF	3	V		50	.8	
PALE	5	0209	0215U	0228	S19	W22	.413		3.4	19	SF	3	C		113		
MONT	5	1005	1007	1014	S11	W47	.726		1.9	9	SF		C	1007	50		E
HEND	5	1438		1452	S23	W64	.893		29.8	14	SF		C	1440	31		E
HEND	5	1520		1540	S25	W62	.880		1.0	20	SF		C	1530	50	1.2	E
HOLL	6	0013	0014	0019	S25	W59	.856		1.6	6	SF	3	C		019		
HEND	6	1358	1405	1437	S14	E26	.445		8.5	39	SN		C	1405	125	1.5	
HOLL	6	1604	1605	1627	N 2	W45	.717		3.3	23	SF	3	C		030		
PALE	6	2050E	2056U	2059	N 1	W44	.703		3.6	9D	SF	2	C		052		
RAMY	7	1437	1438	1447	S13	W77	.969		1.8	10	SF	3	C		0 0		
PALE	7	1806E	1806U	1920D	N14	W45	.760		4.4	74D	SF	2	C		050		
HOLL	7	1930	1933	1937	S15	W77	.969		2.0	7	SF	3	C		0 0		
PALE	8	0052	0053	0057	N14	W48	.790		4.4	5	SF	3	C		021		
RAMY	8	1229	1235	1314	N12	W57	.865		4.2	45	SF	3	C		059		
RAMY	8	1314	1316	1330	S14	W 0	.118		8.6	16	SF	3	C		030		
RAMY	8	1427	1428	1441	N12	W54	.839		4.6	14	SF	3	C		015		
RAMY	9	1559	1609	1633	N16	E44	.759		13.0	34	SN	3	C		1 3		
HOLL	9	1602	1604	1624	N16	E44	.759		13.0	22	SF	3	C		027		
BIGB	9	1729	1738	1803	N18	E90	1.001		16.5	34	1N	3	C	1738	60		
RAMY	9	1743	1745	1800	N17	W67	.943		4.7	17	SF	3	C		050		
HOLL	9	1743	1745	1807	N16	W70	.957		4.5	24	SF	3	C		0 0		
BIGB	9	1744	1747	1807D	N16	W72	.966		15.1	23D	1F	3	P	1747	210		
HOLL	9	1822	1825	1831	N16	W72	.966		4.4	9	SF	3	C		0 0		
BIGB	9	2231	2238	2259	S14	W21	.370		8.4	28	SN	3	C	2238	50	.6	
PALE	9	2352	2357	0002	N15	E39	.702		12.9	10	SF	3	C		041		
PALE	10	2026	2033	2119	S12	E63	.884		15.6	53	SN	3	C		085		D
RAMY	10	2028	2037	2042D	S13	E66	.907		15.8	14D	SN	3	C		084		
RAMY	12	1434	1440	1443	S17	E16	.316		13.8	9	SF	3	C		027		

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MANI	13	0702E	0702U	0710D	S10	E46	.714		16.7	8D	SF	3	V		30	.4	
MONT	13	0953	0959	1019	S11	E42	.664		16.6	26	SN		C	0959	180		
RAMY	13	1238	1238	1247	S17	E 4	.183		13.8	9	SF	3	C		029		
RAMY	13	1354	1354	1432	S18	E 4	.199		13.9	38	SF	3	C		038		
RAMY	13	1432	1432	1438	S14	W68	.920		8.5	6	SF	3	C		012		
BIGB	13	1912	1914	1928	S13	E24	.412		15.6	16	SN	3	C	1914	70	.8	
RAMY	13	1914	1917	1927	S12	E23	.393		15.5	13	SF	3	C		1 6		
HOLL	13	1915	1915	1918	S11	E23	.391		15.5	3	SF	3	C		023		
BIGB	13	2038	2041	2114	S16	E02	.157		14.0	36	SN	3	C	2041	90	.9	
HOLL	13	2334	2338	2348	S17	W 1	.171		13.9	14	SF	3	C		036		
BIGB	13	2334	2338	0015D	S16	E00	.153		14.0	41D	SF	3	P	2338	110	1.1	
PALE	14	0016	0020	0033	S16	W74	.955		8.5	17	SN	3	C		082		
HOLL	14	0016	0018	0027	S16	W72	.944		8.6	11	SN	3	C		040		
MANI	14	0021E	0021U	0028	S14	W72	.945		8.6	7D	SF	2	V		40	.9	
PALE	14	0231	0234	0241	S16	W75	.960		8.5	10	SF	3	C		031		
RAMY	14	1359	1359	1403	S16	W79	.976		8.7	4	SN	3	C		0 0		
HOLL	14	1901	1901	1908	S17	W10	.239		14.0	7	SF	3	C		042		
HOLL	14	2259	2302	2312	S17	W12	.264		14.1	13	SF	3	C		087		
BIGB	14	2259	2305	2340	S17	W13	.276		14.0	41	SB	3	C	2305	140	1.5	
MONT	15	0911	0920	0930	S17	W15	.358		14.0	19	SN		C	0920	110		
BIGB	15	2041	2043	2052	N10	E89	1.000		22.5	11	18	3	C	2043	50		
PALE	15	2044	2044	2048	N14	E77	.982		21.6	4	SF	3	C		0 0		
BIGB	15	2211	2217	2239D	S12	W05	.120		15.5	28D	SB	3	P	2217	110	1.1	
PALE	15	2216	2218	2238	S12	W 5	.120		15.6	22	SF	3	C		037		D
WEND	16	0651	0654	0702	N18	E57	.880		22.6	11	SF		C	0654	63	1.2	
WEND	16	1040		1145D	S12	E32	.529		20.8	65D	SN		C	1103	138	1.7	E
WEND	16	1335E		1350D	S27	E19	.452		20.0	15D	SN		C	1341	75	.9	E
RAMY	16	1336	1341	1354	S29	E18	.465		19.9	18	SN	3	C		066		
BIGB	16	1535	1538	1556	S27	E18	.442		20.0	21	SB	2	C	1538	110	1.2	
RAMY	16	1536	1537	1546	S29	E18	.465		20.0	10	SB	3	C		095		
HOLL	16	1536	1540	1547	S26	E15	.402		19.8	11	SN	3	C		116		
WEND	16	1539E		1544D	S27	E19	.452		20.1	5D	SN		C	1539	50	.6	
RAMY	16	1725	1728	1734	N15	E69	.950		23.9	9	SF	3	C		026		
RAMY	16	1757	1759	1814	S18	W39	.636		15.8	17	SF	3	C		019		
HOLL	16	1827	1828	1918	S26	E14	.393		19.8	51	SF	3	C		031		
RAMY	16	1830	1839	1902	S19	W38	.626		15.9	32	SF	3	C		047		
RAMY	16	2000	2003	2012	S18	W40	.649		15.8	12	SF	3	C		027		
HOLL	16	2210	2219	2220	S26	E12	.376		19.8	10	SF	3	C		036		
HOLL	16	2253	2255	2304	S25	E57	.840		23.2	11	SF	3	C		035		
HOLL	19	0018	0019	0026	S17	W41	.659		15.9	8	SF	3	C		018		
MONT	19	0806	0808	0817	S27	E09	.369		20.0	11	SN		C	0808	220		
MANI	19	0810E	0810U	0815D	S25	E06	.323		19.8	5D	SN	2	V		80	.9	
BUCA	19	0810		0820	S27	E08	.364		19.9	10	SN		C	0811	107	1.1	D
WEND	19	1002		1016	S18	W65	.899		14.5	14	SF		C	1010	19		
WEND	19	1016		1027D	S17	E11	.252		20.3	11D	SF		C	1023	31	.3	
RAMY	19	1436	1441	1509	S26	W 2	.326		19.5	33	SB	3	C		141		D
HOLL	19	1436	1441	1510	S25	W 3	.311		19.4	32	SN	3	C		121		
HOLL	19	1513	1516	1520	S27	E 6	.354		20.1	7	SF	3	C		031		
RAMY	19	1609	1612	1620	S18	W69	.926		14.5	11	SF	3	C		023		
HOLL	19	1730	1739	1800	S27	E 5	.350		20.1	30	SN	3	C		065		
BIGB	19	1735	1737	1754	S27	E05	.350		20.1	19	SB	2	C	1737	50	.5	
RAMY	19	1735	1737	1739D	S28	E 4	.363		20.0	4D	SB	3	C		048		D
BIGB	19	1947	1949	2026	S16	W07	.195		19.3	39	SB	2	C	1949	120	1.2	
RAMY	19	1950	1952	2008	S27	W 6	.354		19.4	18	SB	3	C		1 8		
RAMY	19	1955	1957	2054	S22	W48	.750		16.2	59	SN	3	C		131		
BIGB	19	1955	2003	2119	S20	W50	.767		16.1	84	1B	3	C	2003	240	3.8	
PALE	19	1957E	1957U	2001	S26	W 6	.338		19.4	4D	SF	2	C		023		
HOLL	19	2013	2014	2029	S21	W52	.789		15.9	16	SF	2	C		080		
BIGB	19	2258	2304	2351	S16	W07	.195		19.4	53	SF	3	C	2304	70	.7	
PALE	20	0130	0136	0137	S26	W 1	.325		20.0	7	SF	3	C		151		
MANI	20	0131E	0134	0140D	S25	W10	.348		19.3	9D	SF	3	V		150	1.6	
MANI	20	0905E	0905U	0915D	S30	E65	.905		25.3	10D	SF	2	V		30	.6	
WEND	20	1031		1042	S28	W05	.366		20.1	11	SF		C	1036	46	.5	
RAMY	20	1448	1441	1453	S 2	E 4	.112		20.9	13	SF	3	C		039		
HOLL	20	1443	1444	1448D	S 3	E 1	.073		20.7	5D	SN	3	C		080		
RAMY	20	1450	1451	1506	S28	W10	.391		19.9	16	SF	3	C		026		
PALE	20	1904	1906	1921	S28	W12	.404		19.9	17	SF	3	C		028		

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	20	1910	1912	1916	N16	E38	.696		23.6	6	SF	3	C		018		
PALE	20	1952	1953	2008D	S28	E56	.837		25.0	16D	SF	3	C		016		
HOLL	20	2041	2044	2057	S26	W11	.369		20.0	16	SF	3	C		030		
PALE	20	2042	2043	2104	S27	W11	.383		20.0	22	SF	3	C		065		
HOLL	20	2330	2332	2339	N 7	E54	.826		25.0	9	SF	3	C		036		
PALE	21	0135		0142	S27	W22	.483		19.4	7	SF	3	C		072		
PALE	21	2030	2033	2044	S27	E54	.818		25.9	14	SF	3	C		038		
RAMY	21	2032	2034	2038	S29	E53	.813		25.8	6	SF	3	C		038		
PALE	21	2050	2100	2110	S27	E53	.809		25.6	20	SF	3	C		016		
PALE	22	0105		0131	S25	W24	.487		20.2	26	SN	3	C		023		
WEND	22	1013	1016	1032	S22	W19	.402		21.0	19	SF		C	1016	75	.9	
WEND	22	1459	1503	1521	N04	E41	.674		25.7	22	SN		C	1503	94	1.3	E
RAMY	22	1505	1508	1514	N 3	E41	.671		25.7	9	SF	3	C		093		
WEND	22	1605		1634D	S25	W35	.615		20.0	29D	SN		C	1613	69	1.0	E
RAMY	22	1741	1744	1753	N14	E12	.409		23.6	12	SF	3	C		089		
HOLL	22	1828	1830	1843	S28	W37	.653		20.0	15	SN	2	C		042		
PALE	22	2320	2323	2332	S27	E 4	.348		23.3	12	SF	3	C		024		
WEND	23	1100E		1115	N04	E30	.528		25.7	15D	SF		C	1102	30	.4	G
WEND	23	1208E		1220D	S27	W48	.763		19.9	12D	1N		P	1209	295	5.1	
RAMY	23	1319	1323	1329	S26	W50	.779		19.8	10	SN	3	C		025		
BIGB	23	1656	1658	1715	S30	W50	.790		20.0	19	1B	2	C	1658	270	4.3	
RAMY	23	1657	1702	1716	S27	W50	.782		20.0	21	2B	3	C		459		
HOLL	23	1657	1702	1715	S27	W46	.743		20.3	18	1B	3	C		395		D
RAMY	23	2059	2101	2121	S24	W53	.804		19.9	22	SF	3	C		025		
BIGB	24	1536	1544	1605	N23	E70	.964		29.9	29	1N	2	C	1544	110		
RAMY	25	1220	1221	1225	N12	W28	.554		23.4	5	SF	3	C		024		
RAMY	25	1337	1406	1415	N18	E58	.886		29.9	38	SF	3	C		044		
RAMY	25	1351	1356	1417	N27	E57	.904		29.9	26	SF	3	C		058		
RAMY	25	1405	1405	1416	N23	W23	.607		23.9	11	SF	3	C		028		
RAMY	25	1406	1406	1420	S27	W22	.485		23.9	14	SF	3	C		046		
RAMY	25	1421	1423	1430	N17	E57	.876		29.9	9	SF	3	C		018		
RAMY	25	1425	1425	1441	S27	W21	.475		24.0	16	SF	3	C		033		
RAMY	25	1450	1454	1503	S28	W19	.465		24.2	13	SF	3	C		067		
HOLL	25	1451	1454	1509D	S27	W13	.400		24.6	18D	SN	3	C		122		
HOLL	25	1559	1601	1608	N11	W31	.583		23.3	9	SF	3	C		031		
HOLL	25	1631	1637	1700	N10	W 1	.291		25.6	29	SF	3	C		165		
HOLL	25	1635	1640	1646	N17	E42	.742		28.8	11	SF	3	C		021		
RAMY	25	1717	1719	1725	N14	E57	.869		30.0	8	SN	3	C		067		
RAMY	25	1737	1740	1748	S28	W75	.959		20.1	11	SN	3	C		064		
HOLL	25	1739E	1740	1747	S31	W67	.919		20.7	8D	SN	2	C		067		
HOLL	25	2053	2053	2111	S27	W26	.528		23.9	18	SN	3	C		149		
HOLL	25	2103	2103	2130	N13	E40	.700		28.9	27	SF	3	C		030		
HOLL	26	0002	0007	0031	N14	E52	.826		29.9	29	1B	3	C		273		D
HOLL	26	0004	0007	0014	S30	W70	.935		20.8	10	SN	3	C		025		
RAMY	26	1139	1159	1253	N14	E31	.604		28.8	74	SF	3	C		020		
RAMY	26	1329	1334	1353	S29	W80	.978		20.6	24	SB	3	C		0 0		
RAMY	26	1333	1334	1339	N15	E56	.863		30.8	6	SF	3	C		023		
RAMY	26	1420	1421	1430	S29	W83	.987		20.4	10	SB	3	C		0 0		
HOLL	26	1420	1421	1427	S30	W81	.981		20.5	7	SB	3	C		0 0		
RAMY	26	1456	1517	1518	S12	E71	.940		31.9	22	SF	3	C		011		
HOLL	26	1743	1745	1807D	N18	E62	.914		31.4	24D	SN	3	C		090		
HOLL	26	1800E	1804	1807	S29	W90	.998		20.0	7D	SN	3	C		0 0		
HOLL	26	2147	2147	2204	S 9	E67	.916		31.9	17	SF	3	C		014		
HOLL	26	2255	2304	2333	S27	W35	.627		24.3	38	SB	3	C		134		D
PALE	26	2256E	2303U	2330	S28	W36	.644		24.3	34D	SN	3	C		094		D
BIGB	26	2256	2259	2330	S28	W37	.655		24.2	34	SB	2	C	2259	110	1.4	
BIGB	26	2315	2318	2339	S31	W14	.462		25.9	24	SB	2	C	2318	110	1.2	
HOLL	26	2315	2321	2334	S29	W12	.421		26.1	19	SF	3	C		122		
PALE	26	2316E	2318	2333	S30	W12	.435		26.1	17D	SF	3	C		110		D
PALE	26	2339E	2342U	2356	S29	W37	.660		24.2	19D	SB	3	C		1 6		
HANI	27	0419E	0419U	0428D	N29	E69	.967		1.4	9D	SN	3	V		25	.5	
HANI	27	0837E	0837U	0843D	N15	E21	.502		28.9	6D	SN	3	V		60	.7	
BIGB	27	1838	1840	1920	N24	W59	.908		23.4	42	2B	2	P	1840	310	6.2	
BIGB	27	2009	2018	2034	S32	W90	.998		21.1	25	SN	3	C	2018	40		
BIGB	27	2030	2032	2047	N09	E10	.320		28.6	17	SB	3	C	2032	80	.8	

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MARCH 1980

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
BIGB	27	2102	2110	2144	S27	W48	.764		24.3	42	SB	3	C	2110	80	1.2	
MANI	28	0158E	0158U	0210D	N10	E08	.318		28.7	12D	SF	2	V		60	.6	
ATHN	28	0643E	0645	0710	N24	E15	.560		29.4	27D	1B	3	C		2 6		
ATHN	28	0733E	0734	0752	N13	E 2	.340		28.5	19D	SB	3	C		048		D
MANI	28	0853E	0853U	0855D	S13	E52	.783		1.3	2D	SF	2	V		50	.7	
BIGB	28	1511	1514	1530	N27	E59	.915		2.1	19	SB	2	C	1514	80	1.6	
BIGB	28	1629	1632	1640	N07	W05	.253		28.3	11	SF	2	C	1632	80	.8	
BIGB	28	1743	1751	1810	S28	W60	.870		24.2	27	SN	3	C	1751	70	1.4	
PALE	28	1852	1854	1857	N21	W19	.551		27.4	5	SF	3	C		021		D
PALE	28	1942	1945	2009	N 9	W 3	.276		28.6	27	SN	3	C		020		D
PALE	28	1959	2004	2042	N13	W 1	.338		28.8	43	1B	3	C		315		
BIGB	28	2000	2004	2100	N14	E01	.355		28.9	60	SB	3	C	2004	160	1.6	
BIGB	28	2046	2055	2124	N08	W04	.264		28.6	38	SB	2	C	2055	110	1.1	
PALE	28	2051	2110	2115	N 8	W 6	.274		28.4	24	SN	3	C		053		D
PALE	28	2158	2200	2211	N16	E19	.493		30.3	13	SF	3	C		064		
BIGB	28	2158	2200	2230	N08	W04	.264		28.6	32	SB	2	C	2200	180	1.9	
PALE	28	2158	2201	2220	N 9	W 4	.280		28.6	22	1B	3	C		238		D
PALE	28	2348	2349	2352	N28	E46	.833		1.4	4	SF	3	C		031		
PALE	28	2348	2354	0005	N29	E45	.830		1.4	17	SF	3	C		021		
BIGB	29	0043	0045	0054	N26	E52	.867		1.9	11	SB	3	C	0045	80	1.3	
PALE	29	0043	0046	0053	N28	E45	.825		1.4	10	SB	3	C		1 7		
PALE	29	0102	0120	0204	N27	E42	.796		1.2	62	1B	3	C		199		
PALE	29	0102	0114	0118D	N25	E42	.785		1.2	16D	1N	3	C		177		
BIGB	29	0108	0115	0140D	N25	E43	.793		1.3	32D	1B	2	P	0115	150	2.1	
PALE	29	0112	0115	0133D	N 9	E 9	.310		29.7	21D	SN	3	C		066		
MANI	29	0124E	0124U	0126D	N27	E44	.812		1.4	2D	1N	2	P		150	2.5	F
PALE	29	0329	0332U	0340	N 8	W 8	.288		28.5	11	SN	2	C		070		
ISTA	29	0845		0915D	N09	W08	.303		28.8	30D	SN						E
ATHN	29	0942E	0958	1006	N 7	W10	.291		28.7	24D	SB	4	C		080		
RAMY	29	1416	1425	1518	N10	E 4	.295		29.9	62	1N	3	C		275		
RAMY	29	1443	1447	1455	N 8	W13	.335		28.6	12	SB	3	C		099		D
RAMY	29	1530	1530	1542	S29	W51	.795		25.8	12	SF	3	C		126		
HOLL	29	1754	1757	1806	N13	E 2	.339		29.9	14	SN	3	C		053		
RAMY	29	1816	1817	1819	N26	E37	.750		1.5	3	SF	3	C		026		
HOLL	29	1846	1847	1859	N10	W16	.392		28.6	13	SF	3	C		044		
PALE	29	2015	2017	2023	N28	E34	.740		1.4	8	SN	3	C		019		D
HOLL	29	2015	2016	2023	N28	E36	.756		1.5	8	SN	3	C		023		
PALE	29	2027	2027	2038	N 9	W 1	.271		29.8	11	SF	3	C		025		D
RAMY	29	2040	2042U	2055D	N25	E36	.734		1.6	15D	SN	2	C		060		
HOLL	29	2041	2051	2107	N29	E35	.756		1.5	26	SN	3	C		050		
PALE	29	2045E	2051U	2051D	N28	E34	.740		1.4	6D	SN	3	C		046		D
HOLL	29	2119	2123	2205	N11	E 0	.304		29.9	46	SF	3	C		094		
BIGB	29	2120	2122	2141	N10	E00	.287		29.9	21	SN	2	C	2122	90	.9	
BIGB	29	2130	2133	2150	N26	E35	.733		1.5	20	SB	2	C	2133	60	.8	
PALE	29	2133E	2133U	2155	N27	E32	.717		1.3	22D	SN	3	C		075		D
PALE	29	2133E	2134U	2236	N10	W 0	.287		29.9	63D	SF	2	C		048		
HOLL	29	2133	2133	2146	N29	E35	.756		1.5	13	SN	3	C		070		
BIGB	29	2136	2138	2213	N12	W11	.369		29.1	37	SN	2	C	2138	60	.6	
HOLL	29	2137	2137	2155	N15	W11	.411		29.1	16	SN	3	C		071		
PALE	29	2139E	2139U	2159D	N12	W17	.426		28.6	20D	SN	2	C		069		
MANI	29	2248E	2308	2336	N10	W02	.289		29.8	48D	SN	2	P		130	1.4	F
PALE	29	2253E	2253U	2305	S25	E 1	.314		30.0	12D	SF	2	C		048		
BIGB	29	2258	2304	2357	N10	W11	.342		29.1	59	SN	2	C	2304	90	.9	
MANI	29	2348	2353	0004	N26	E32	.708		1.4	16	SF	2	P		30	.4	
PALE	29	2350E	2356	0005	N26	E31	.700		1.3	15D	SF	3	C		020		D
PALE	30	0006	0007	0012	S26	W85	.992		23.6	6	SF	2	C		0 0		
PALE	30	0157	0200	0211	N26	E30	.692		1.3	14	SF	2	C		044		
MANI	30	0159E	0200	0211	N26	E31	.700		1.4	12D	SF	2	P		30	.4	
MANI	30	0204E	0206	0217D	N13	W18	.447		28.7	13D	SF	2	P		25	.3	
PALE	30	0204	0209U	0224	N12	W17	.425		28.8	20	SF	2	C		030		
PALE	30	0228	0240	0255	N12	W17	.425		28.8	27	SF	3	C		025		
PALE	30	0243	0249	0256	S28	W 6	.376		29.7	13	SF	3	C		025		D
PALE	30	0303	0303	0308	N26	E29	.683		1.3	5	SN	3	C		041		
PALE	30	0339	0339	0342	N26	E29	.683		1.3	3	SF	2	C		045		
ISTA	30	0653		0706	N28	E32	.724		1.7	13	SF						E
RAMY	30	1409	1409	1414	N26	E23	.637		1.3	5	SN	3	C		025		
BIGB	30	1617	1619	1648	N09	W13	.347		29.7	31	SN	2	C	1619	60	.6	
RAMY	30	1617	1621	1630	N10	W14	.370		29.6	13	SN	3	C		067		
HOLL	30	1618	1620	1630	N13	W10	.375		29.9	12	SN	3	C		069		

Hα SOLAR FLARES

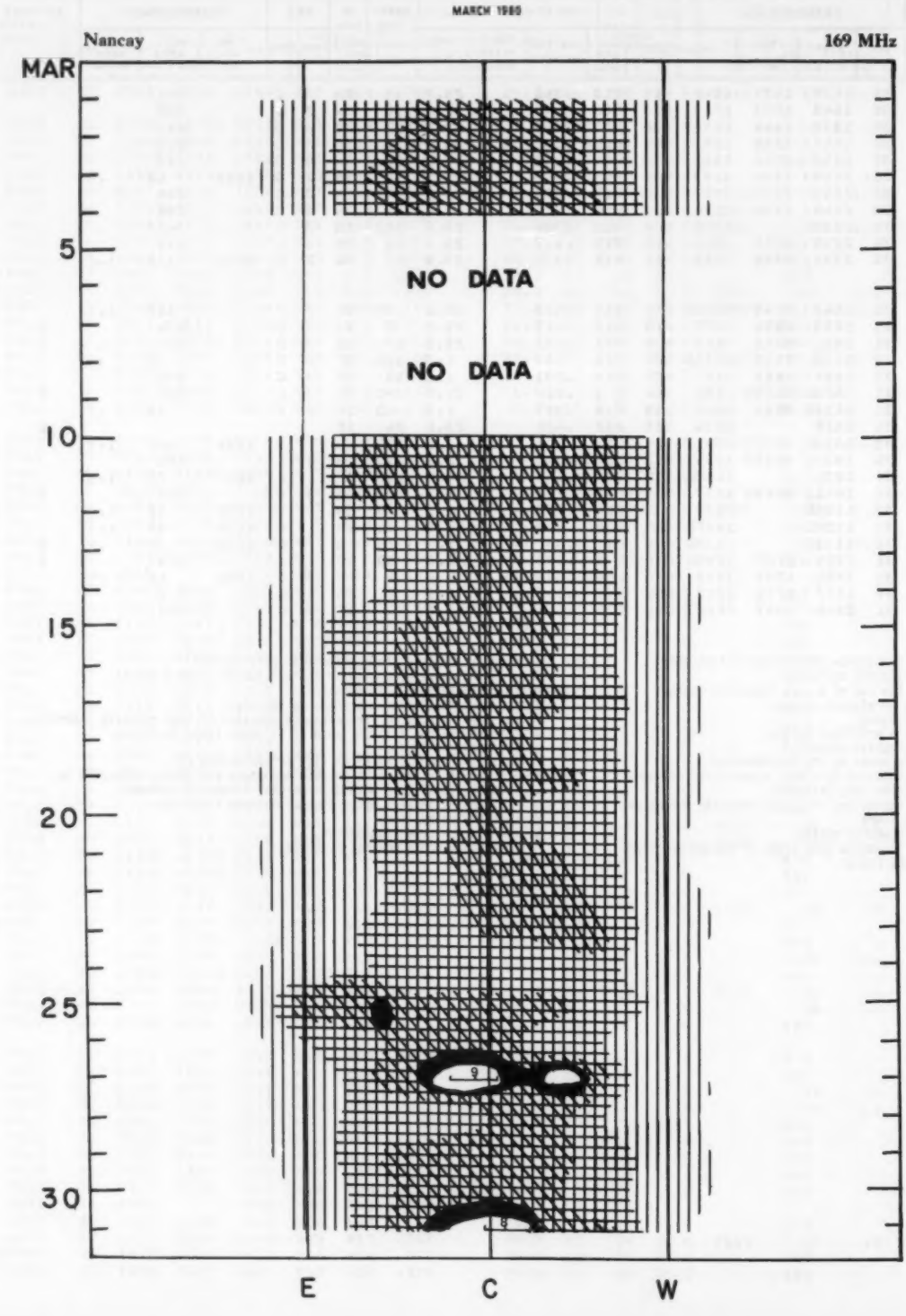
MARCH 1980

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA MIL. of Disk	CORR. AREA Sq. Deg.	
RAMY	30	1635	1637	1645	N10	W13	.360		29.7	10	SN	3	C		066		
RAMY	30	1648	1653	1710	N23	E28	.648		1.8	22	SN	3	C		087		
PALE	30	1838	1846	1854	N10	W13	.360		29.8	16	SB	3	C		081		
RAMY	30	1842	1848	1852	N10	W15	.381		29.7	10	SN	3	C		023		
HOLL	30	1842	1846	1852	N13	W11	.383		30.0	10	SN	3	C		053		
BIGB	30	2049	2050	2103	N09	W13	.347		29.9	14	SN	2	C	2050	60	.6	
PALE	30	2049	2050	2053	N 8	W17	.381		29.6	4	SN	3	C		066		
HOLL	30	2049	2050	2054	N11	W16	.403		29.7	5	SN	3	C		055		
PALE	30	2237E		2305	N 8	W18	.394		29.6	28D	1N	3	C		342		
HOLL	30	2238	2245	2306	N13	W15	.417		29.8	28	1N	3	C		270		
BIGB	30	2238	2246	2325	N10	W15	.381		29.8	47	SB	2	C	2246	120	1.3	
MANI	31	0048	0049	0051D	N10	W19	.425		29.6	3D	SN	2	P		100	1.1	
HOLL	31	0050	0051	0057	N13	W15	.417		29.9	7	SB	3	C		054		D
PALE	31	0051	0051	0108	N 8	W21	.431		29.5	17	SB	3	C		082		D
MANI	31	0116	0118	0126D	N26	E16	.589		1.3	10D	SF	2	P		50	.6	
PALE	31	0117	0117	0127	N27	E14	.591		1.1	10	SF	3	C		032		
ATHN	31	0600E	0603U	0626	S18	E 3	.204		31.5	26D	SB	3	C		095		D
MANI	31	0613E	0614	0621	S08	E18	.307		1.6	8D	SF	2	P		20	.2	
ISTA	31	0810		0834	N05	W37	.625		28.6	24	SF						D
WEND	31	1029E	1031	1041	N26	E14	.578		1.5	12D	SN		C	1031	162	1.9	
ATHN	31	1033E	1035U	1054	N12	E24	.504		2.2	21D	1B	3	C		254		
WEND	31	1038		1057D	N10	W38	.660		28.6	19D	SF		C	1047	75	1.0	
ATHN	31	1041E	1043U	1157	N41	W12	.753		30.5	76D	1B	3	C		222		D
WEND	31	1129E		1136	N26	E14	.578		1.5	7D	SN		C	1132	82	1.0	
WEND	31	1129E		1137D	N10	W38	.660		28.6	8D	SN		C	1132	80	1.1	
WEND	31	1131E		1138D	N19	E11	.467		1.3	7D	SN		C	1132	38	.4	D
HOLL	31	1706	1707	1709D	N26	E 8	.552		1.3	3D	SB	2	C		139		D
BIGB	31	1706	1708	1712	N26	E09	.556		1.4	6	SN	2	C	1708	60	.6	
RAMY	31	1707	1708	1712	N26	E10	.560		1.5	5	SB	3	C		1 1		
PALE	31	2346	2347	0011	N11	W29	.556		29.8	25	SF	3	C		053		

"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

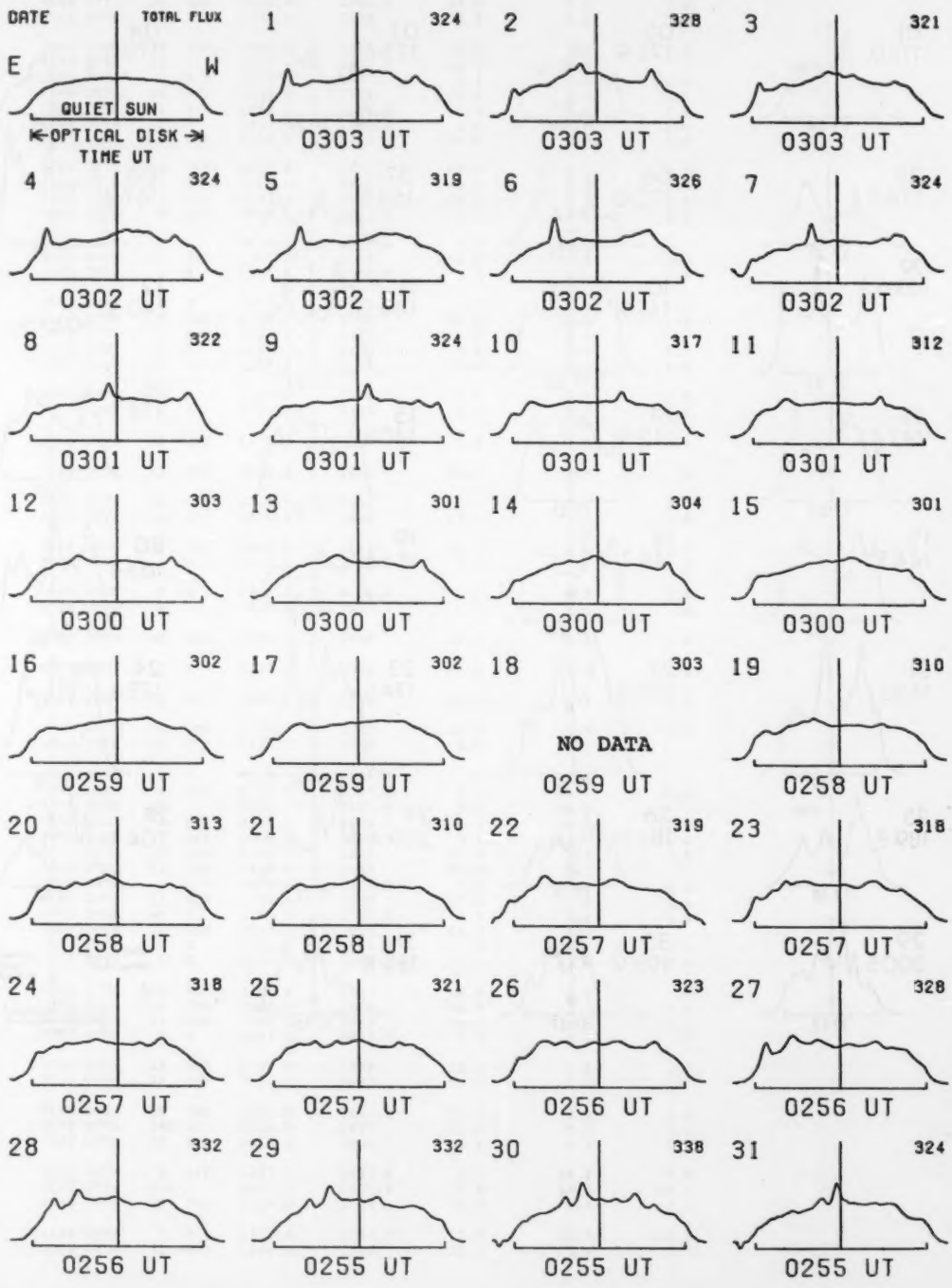
SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION



EAST-WEST SOLAR SCANS
MARCH 1980

TOYOKAWA, JAPAN

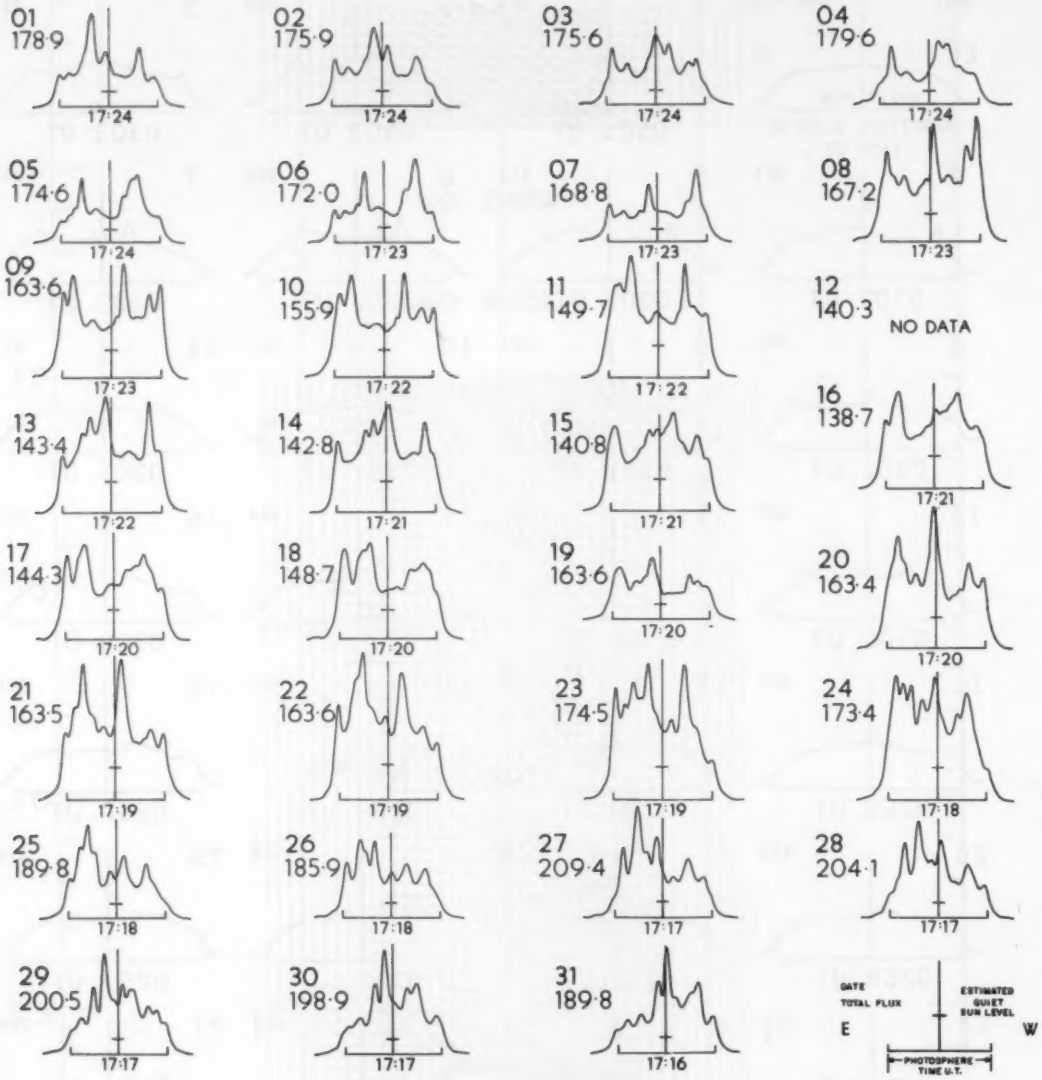
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
MARCH 1980

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2800	OTTA	1 S	1523.0	1523.2	1.0	2.0	1.0		
	2800	OTTA	20 GRF	1840.0	1846.5	20.0	2.0	1.0		
	2695	PENT	20 GRF	2205.0	2230	50.0	2.8	1.4		
02	2800	OTTA	20 GRF	1506.0	1509.5	28.0	3.2	1.2		
	8400	BERN	4	1633.4	1637.3	20.0D	225.0D			OPR
	2800	OTTA	4 S/F	1633.6	1637.3	5.4	119.0	34.4		
	2800	OTTA	30 PBI	1639.0	1639	10.0	4.0	1.4		
	2800	OTTA	2 S/F	1640.1	1641.2	1.4	5.4	2.0		
	2800	OTTA	1 S	1905.5	1905.8	1.0	2.0	1.0		
	2695	PENT	20 GRF	2110.0	2215	130.0	3.4	2.6		
03	2800	OTTA	20 GRF	1615.0	1655	90.0	2.4	1.2		
	2800	OTTA	21 GRF	1853.0	1915	85.0	3.2	2.0		
	2800	OTTA	1 S	1941.0	1942	10.0	4.2	2.0		
	2800	OTTA	4 S/F	2050.3	2051.4	5.0	14.8	4.0		
04	8400	BERN	3	1019.1	1019.6	1.5	45.0			OPR
	2800	OTTA	21 GRF	1250.0	1358	430.0	12.4	6.0		
	2800	OTTA	1 S	1348.5	1349.8	2.5	5.4	1.8		
05	2800	OTTA	1 S	1525.0	1526.2	3.0	2.4	1.2		
	2800	OTTA	20 GRF	1720.0	1750	60.0	2.0	1.0		
	2800	OTTA	2 S/F	2207.0	2207.7	1.0	4.8			
	2695	PENT	1 S	2232.3	2233.5	2.0	3.4	1.7		
	2695	PENT	20 GRF	2328.0	2331	13.0	12.0	4.6		
06	2800	OTTA	1 S	1537.5	1538.7	1.5	2.0	1.0		
	2695	PENT	1 S	2332.0	2332	1.0	1.8	.9		
07	2800	OTTA	20 GRF	1725.0	1755	155.0	6.8	3.4		
08	2800	OTTA	20 GRF	1530.0	1615	80.0	1.8	.9		
09	2800	OTTA	20 GRF	1740.0	1830	110.0	5.8	3.8		
	2800	OTTA	240 R	2018.0	2030	12.0	3.2	2.0		
10	2800	OTTA	20 GRF	2050.0	2103	25.0	2.6	1.3		
	2695	PENT	1 S	2226.2	2227.5	4.0	7.8	3.6		
11	2695	PENT	8 S	0054.0	0054.3	.5	6.2	3.0		
	2800	OTTA	8 S	2028.0	2028.2	.5	1.6	.8		
13	2800	OTTA	20 GRF	2035.0	2038	20.0	2.0	1.0		
14	2695	PENT	1 S	2259.0	2300	6.0	8.4	4.0		
15	2695	PENT	20 GRF	2200.0	2220	135.0	3.4	1.7		
18	2800	OTTA	21 GRF	1535.7	1537	20.0	2.8	2.4		
	2800	OTTA	40 F	1539.9	1540	3.0	4.2			
19	2695	MANI	1 S	0319.7	0320.0	.8	3.8	1.3		
	2695	MANI	4 S/F	0524.0	0524.5	2.0	26.7	8.9		
	8400	BERN	46	0805.3	0806.6	9.0	90.0			OPR
	2695	MANI	4 S/F	0805.8	0806.7	4.2	50.8	16.9		
	8800	MANI	4 S/F	0806.2	0806.7	3.0	104.4	34.8		
	2800	OTTA	20 GRF	1228.0	1245	55.0	2.4	1.5		
	2800	OTTA	21 GRF	1420.0	1445	80.0D	5.2			
	2800	OTTA	4 S/F	1436.8	1440.3	7.0	25.8	8.6		
	2800	OTTA	21 GRF	1725.0	1830	125.0	3.0	2.0		
	2800	OTTA	45 C	1736.0	1737.5	2.5	5.8	2.8		
	2800	OTTA	21 GRF	1945.0	2003	60.0	4.6			
	2800	OTTA	3 S	1946.0	1948.7	7.0	10.6	3.5		
	2800	OTTA	3 S	1955.5	1958.2	6.0	11.6	3.8		
20	2800	OTTA	20 GRF	1445.0	1454	20.0	1.8	.9		
	2800	OTTA	20 GRF	1845.0	1910	100.0	3.2	2.6		
	2800	OTTA	21 GRF	2030.0	2050	150.0	2.4	1.2		
	2800	OTTA	1 S	2043.2	2043.5	1.5	1.8	.9		
21	2800	OTTA	20 GRF	1720.0	1830	110.0	2.6	1.3		
	2800	OTTA	20 GRF	1955.0	2017	55.0	2.2	1.1		
22	2800	OTTA	20 GRF	1454.0	1456.5	55.0	3.2	1.6		
	2800	OTTA	240 R	1820.0	1835	15.0	4.2	2.1		
	2800	OTTA	20 GRF	2015.0	2030	55.0	2.2	1.4		
23	2800	OTTA	4 S/F	1207.2	1207.4	1.3	16.2	3.8		
	2800	OTTA	46F C	1655.0	1657.8	15.0	25.8	10.8		
	2800	OTTA	29 PBI	1710.0	1710	20.0	4.4	2.2		
24	2800	OTTA	3 S	1358.0	1358.3	1.0	52.0	13.0		
	2800	OTTA	21 GRF	1500.0	1538	110.0	3.4	1.7		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
MARCH 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
24	2800	OTTA	8 S	1528.5	1529	.9	2.8	1.4		
	2800	OTTA	1 S	1535.0	1536.2	2.0	2.8	1.4		
	2800	OTTA	1 S	1541.0	1542	2.0	1.4	.7		
	2800	OTTA	27A RF	1958.0		94.0	3.4	2.7		
	2800	OTTA	24 R	1958.0	2020	22.0	3.4	1.7		
	2800	OTTA	4 S/F	1958.7	1959.2	4.5	34.4	8.6		
	2800	OTTA	24P R	2020.0		55.0	3.4			
	2800	OTTA	26 FAL	2115.0	2132	17.0	-3.4	-1.7		
25	2800	OTTA	1 S	1349.0	1353	6.0	2.6	1.9		
	2800	OTTA	21 GRF	1530.0	1640	115.0	5.4			
	2800	OTTA	4 S/F	1716.5	1717.7	3.0	14.2	6.0		
	2800	OTTA	1 S	1737.0	1737.1	1.0	2.4	1.2		
	2800	OTTA	4 S/F	1924.0	1924.6	2.0	10.0	3.4		
	2800	OTTA	23 GRF	1945.0	2118	110.0	3.6	1.8		
	2800	OTTA	40 F	2045.0	2049.7	6.0	2.8			
	2695	PENT	1 S	2200.5	2202	3.5	2.8	1.4		
	2800	OTTA	1A S	2227.0	2228.5	5.0	4.2	2.1		
	2800	OTTA	8 S	2228.1	2228.1	.1	22.0			
26	2695	PENT	4 S/F	0001.5	0007.5	13.0	145.0	28.2		
	8800	MANI	4 S/F	0005.0	0007.7	6.5	142.6	47.5		
	2695	MANI	4 S/F	0007.0	0007.7	10.3	118.8	39.6		
	8400	BERN	41	1014.3	1015.3	4.0	7.0			OPR
	8400	BERN	20	1039.0	1039.8	6.0	5.0			OPR
	8400	BERN	20	1109.1	1110.2	4.0	7.0			OPR
	8400	BERN	46	1328.2	1330.2	4.0	36.0			OPR
	2800	OTTA	46F C	1328.2	1330.7	6.0	14.8	3.5		
	2800	OTTA	2 S/F	1419.5	1421	4.5	6.0	2.4		
	2800	OTTA	24O R	1740.0	1800	20.0	3.6	2.6		
	2800	OTTA	1 S	2204.0	2205	3.0	2.8	1.4		
	2695	PENT	40 F	2255.5	2256.7	5.0	6.4			
	2695	PENT	1 S	2306.5	2307	1.0	3.2	1.6		
	2695	PENT	1 S	2308.5	2309	1.0	2.6	1.3		
	2695	PENT	8 S	2320.2	2320.3	.2	3.2			
	2695	PENT	1 S	2338.5	2339	2.0	3.2	1.6		
27	8400	BERN	3	1021.5	1022.8	3.5	16.0			OPR
	2800	OTTA	47 GB	1210.0	1259.5	90.0	733.0	137.0		
	8400	BERN	47	1215.0	1259.7	18.0	260.0D			OPR
	2800	OTTA	30 PBI	1340.0	1340	610.0	32.4	11.0		
	2800	OTTA	21 GRF	1830.0	1844	50.0	7.0	2.4		
	2800	OTTA	4 S/F	1837.0	1840	6.5	275.0	59.0		
	2800	OTTA	45 C	2030.2	2030.7	2.0	26.8	8.9		
	2800	OTTA	45 C	2108.0	2108.7	2.5	5.6	2.8		
	2800	OTTA	29 PBI	2110.5	2110.5	8.0	2.2	1.1		
28	8400	BERN	46	0954.1	0956.5	7.0	190.0			OPR
	2800	OTTA	20 GRF	1455.0	1511	65.0	3.6	1.2		
	2800	OTTA	21 GRF	2000.0	2017	100.0	12.4	6.2		
	2800	OTTA	4 S/F	2001.5	2005	6.0	32.2	16.1		
	2800	OTTA	4 S/F	2053.0	2054	3.0	31.2	15.6		
	2800	OTTA	4 S/F	2157.0	2159.5	4.0	155.2	26.0		
	2800	OTTA	29 PBI	2201.0	2201	14.0	4.4	2.2		
	2695	PENT	3 S	2443.0	2444	2.0	25.2	12.6		
29	2695	MANI	4 S/F	0511.8	0515.0	4.7	50.4	16.8		
	8400	BERN	4	0735.5	0736.4	4.0	72.0			ORP
	2695	MANI	4 S/F	0913.6	0918.9	7.1	58.2	19.4		
	8400	BERN	47	0915.6	0918.3	5.0	243.0D			OPR
	8800	MANI	47 GB	0917.6	0919.0	3.1	696.1	232.0		
	2695	MANI	4 S/F	0939.5	0941.0	3.5	46.6	15.5		
	8400	BERN	4	0940.0	0941.4	2.0	37.0			OPR
	8800	MANI	4 S/F	0940.8	0942.0	2.7	69.6	23.2		
	8400	BERN	3	0954.4	0955.3	3.0	164.0			OPR
	8400	BERN	1	1013.6	1014.5	2.0	11.0			OPR
	2800	OTTA	8 S	1216.7	1216.7	.6	21.0			
	2800	OTTA	1 S	1357.0	1400	6.0	2.8	1.0		
	2800	OTTA		1419.0	1420	3.0D	9.8			
	2800	OTTA	21 GRF	1419.0	1450	70.0D	6.4			
	2800	OTTA	46F C	1442.0	1447.3	8.0	18.4	3.6		
	8400	BERN	1	1447.0	1447.5	2.0	11.0			OPR
	2800	OTTA	40 F	1501.2	1502	3.0	2.8			
	2800	OTTA	21 GRF	1640.0	1713	55.0	2.8	1.4		
	2800	OTTA	8 S	1729.3	1729.4	.5	6.2			
	2800	OTTA	1 S	1816.0	1816.7	2.0	2.4	1.2		
	2800	OTTA	8 S	1937.0	1937	.3	5.2			
	2800	OTTA	2 S/F	2048.0	2049	3.0	2.8	1.7		
	2800	OTTA	1 S	2119.2	2119.7	1.0	2.8	1.4		
	2800	OTTA	1 S	2135.5	2136.3	4.0	3.4	1.7		
	8800	MANI	3 S	2234.3	2235.2	2.0	58.7	19.6		
	2695	MANI	3 S	2234.5	2235.2	1.8	17.1	5.7		
30	2800	OTTA	21 GRF	1240.0	1435	340.0	10.6	5.6		
	8400	BERN	4	1524.7	1525.8	4.0	21.0			OPR

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1980

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
30	2800	OTTA	2 S/P	1525.0	1525.7	4.5	3.4	1.7		
	2800	OTTA	2 S/P	1621.0	1622.3	2.0	2.8	1.4		
	2800	OTTA	1 S	1841.0	1842	2.0	3.4	1.5		
	2800	OTTA	1 S	2049.0	2049.4	1.0	3.4	1.7		
	2695	MANI	4 S/P	2227.5	2239.5	18.0	69.9	23.3		
31	2695	MANI	3 S	0050.6	0051.3	1.4	42.6	14.2		
	8800	MANI	3 S	0050.8	0051.3	2.4	200.2	66.7		
	8400	BERN	3	1028.0	1028.5	2.0	28.0			OPR
	8400	BERN	3	1123.7	1124.3	3.5	67.0			OPR
	2800	OTTA	20 GRP	1655.0	1705	105.0	3.6	1.3		
	2800	OTTA	3 S	1932.8	1933	2.0	18.2	4.8		

Observatories:

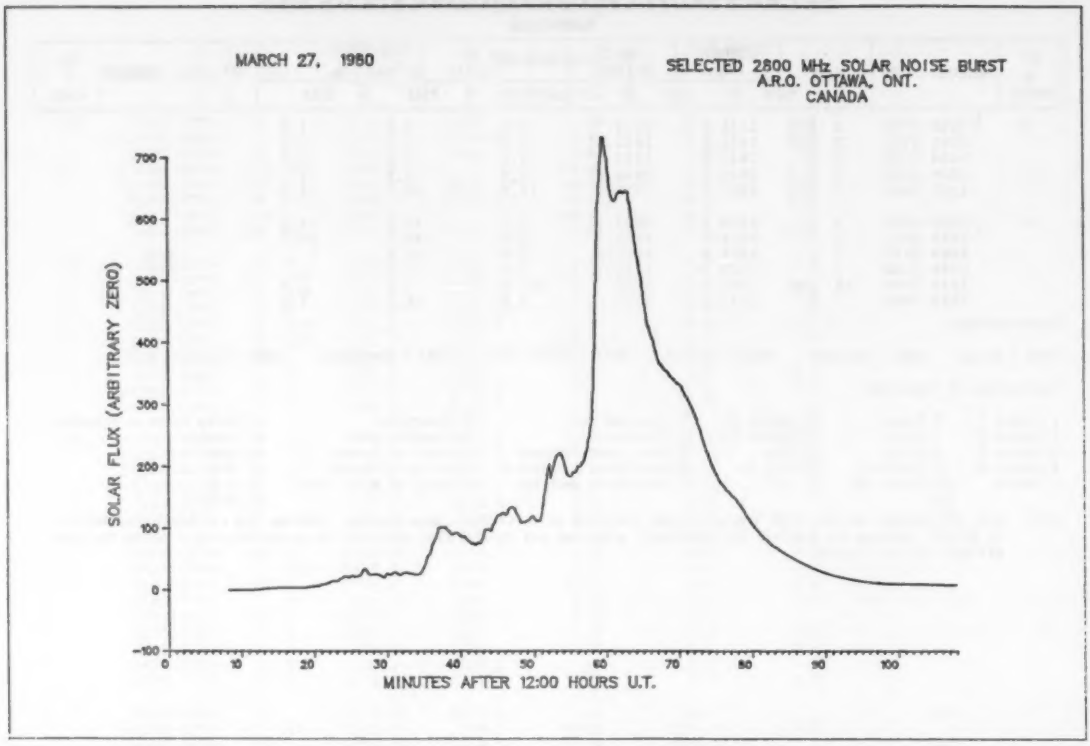
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

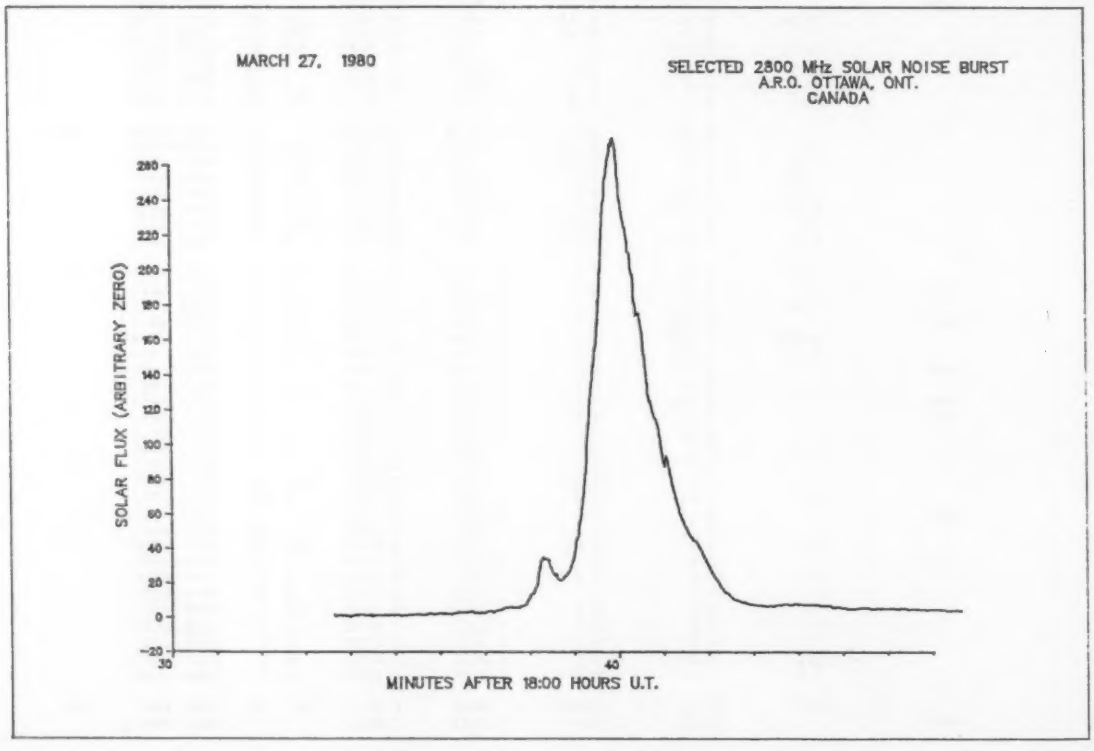
Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

NOTE: U.S. Air Weather Service RSTN data still not available at this time. Some computer problems are still being worked on at NGSDC. Because the problems are relatively minor, we are hopeful that they will be solved shortly. We ask for your patience in the interim.

SELECTED SOLAR NOISE BURSTS





PIONEER VII

MARCH 1980

Date Mar '80	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND AMES[1] U_{H^+} (km/sec)	SOLAR WIND AMES[1] TAU (days)	SOLAR WIND MIT[2] U_{H^+} (km/sec)	SOLAR WIND MIT[2] N_{H^+} (H^+/cc)	COSMIC RAY PROTONS[3] (particles/sec) 6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
8	0207-0600	0200	098.	440.	6.9					
		0300		440.						
		0400		440.						
		0500		414.						
		0600		414.						

1 Wolfe NASA/ARC
2 Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q Used to indicate that a rate is at its quiescent level.

ESP = Earth-Sun Probe Angle.

† Peak velocity.

Note: Data sampled hourly unless otherwise noted.

PIONEER IX

MARCH 1980

Date Mar '80	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1]				IP Z-FIELD[2]	IMF[3]		COSMIC RAY PROTONS[4] (particles/sec)	
				U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	400 Hz (mv)	|B| (γ)	φ (°)	>13.9 Mev	>40 Mev
3	1732-1950	1700	148.	314.			11.	0.34	7.6	092.	3.91	0.8
		1800		314.				.276	7.6	092.	3.96	.76
		1900		314.				.374	7.9	093.	3.92	.75
		2000		325.				.344	5.8	090.	3.89	.8
12	2328-0134	2300	148.3	303.			11.03	.479	12.2	155.	4.13	.7
		2400		293.				----	11.7	124.	----	--
15	2210-2400	2200	No solar wind-Wolfe data erratic					.136	----	291.	4.16	.71
		2300						.129	7.3	324.	4.18	.8
		2400						.117	5.8	320.	4.24	.75
16	0000-0243	0100						.228	5.5	285.	4.25	.73
		0200						.117	6.2	330.	4.26	.77
		0300						.117	6.1	323.	4.27	.78
20	1357-1639	1500	No solar wind-only 1500 data satisfactory					.33	8.2	084.	4.42	.76

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N. H.

ESP = Earth-Sun Probe Angle.

Data sampled hourly unless otherwise noted.

PIONEER XII

MARCH 1980

DATE Mar '80	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} ($\times 10^6$°K)
1	1321	067.6	416.	7.54	0.076
2	1218		362.	16.75	.057
3	2135		355.	12.11	.117
4	1601		335.	14.41	.119
5	1427		367.	6.36	.085
6	1918		376.	12.13	.056
7	2125		386.	13.94	.056
8	1221		292.	24.16	.081
9	1713		318.	46.96	.03
10	1552		296.	28.15	.053
11	2340		298.	----	.036
12	1757		324.	44.98	.024
13	2010		315.	41.1	.022
14	1836		330.	40.42	.017
15	2223	059.	288.	34.57	.016
16	1408		303.	41.36	.044
17	1301		294.	39.43	.038
18	2147		307.	25.79	.139
19	2208		---	23.08	.144
20	0950		384.	21.66	.148
21	1703		437.	8.29	.1
22	2035		389.	12.23	.15
23	1547		359.	19.51	.187
24	1833		293.	12.58	.045
25	2059		299.	19.19	.028
26	1433		330.	22.33	.077
27	1542		405.	18.04	.259
28	1433		372.	11.12	.089
29	2011		381.	30.42	.232
30	1420		348.	12.8	.116
31	1902		449.	8.84	.235

SOLAR WIND

Interplanetary Scintillations

MARCH 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
B00301	61	3	282	56	417	130	2	3C144	103	-7	1.11	-15	-0.46	1692.13
	61	23	381	12	410	13	2	3C48	56	8	0.83	-30	-3.14	1692.32
B00302	62	12	325	23	304	86	2	3C298	130	-3	1.21	11	2.00	1692.12
	62	23	367	9	351	9	4	3C48	55	9	0.82	-30	-3.25	1692.35
B00303	63	2	229	23	196	67	2	3C147	102	0	1.10	-14	-0.25	1692.13
	63	3	280	26	248	23	2	3C144	101	-7	1.10	-15	-0.51	1692.20
	63	23	356	23	377	9	3	3C48	54	9	0.81	-31	-3.41	1692.39
B00304	64	2	346	23	304	11	2	3C147	101	0	1.10	-12	-0.45	1692.28
	64	3	296	16	296	16	3	3C144	100	-7	1.09	-16	-0.68	1692.25
	64	4	299	15	327	25	2	3C161	111	-14	1.14	-12	-0.09	1692.24
	64	23	455	20	424	30	3	3C48	53	10	0.80	-33	-3.33	1692.46
B00305	65	22	393	29	360	15	3	3C48	52	10	0.79	-33	-3.52	1692.48
B00306	66	2	415	15	437	15	3	3C144	98	-7	1.08	-16	-0.85	1692.40
	66	4	353	20	385	13	2	3C161	109	-14	1.13	-12	-0.27	1692.35
	66	11	449	13	440	59	2	3C298	133	-3	1.22	10	1.61	1692.34
	66	22	368	15	359	25	3	3C48	51	11	0.78	-33	-3.69	1692.51
B00307	67	2	285	41	255	44	2	3C144	97	-7	1.08	-15	-0.70	1692.36
	67	3	344	34	382	59	2	3C161	108	-15	1.13	-12	-0.26	1692.38
B00308	68	23	444	31	388	11	3	3C48	50	12	0.77	-36	-3.74	1692.62
B00310	70	22	415	20	393	52	4	3C48	48	13	0.74	-36	-3.95	1692.69
B00311	71	2	319	22	382	51	3	3C144	93	-7	1.06	-16	-0.91	1692.54
	71	22	347	63	345	58	2	3C48	47	14	0.73	-37	-4.30	1692.71
B00312	72	3	227	25	313	14	2	3C161	104	-15	1.11	-13	-0.09	1692.46
	72	22	332	9	339	10	4	3C48	46	14	0.72	-38	-4.47	1692.74
B00313	73	2	345	19	382	17	4	3C144	91	-8	1.05	-16	-1.00	1692.63
	73	3	357	7	359	9	4	3C161	103	-15	1.11	-13	-0.44	1692.62
	73	22	379	13	371	11	4	3C48	45	15	0.71	-38	-4.38	1692.80
B00314	74	1	319	36	311	17	2	3C147	92	0	1.05	-14	-0.76	1692.64
	74	2	272	15	251	15	3	3C144	90	-8	1.04	-17	-1.01	1692.61
	74	3	377	45	289	23	3	3C161	102	-15	1.10	-13	-0.54	1692.67
	74	22	327	19	352	10	4	3C48	44	16	0.69	-40	-4.78	1692.82
B00315	75	1	375	19	269	20	2	3C147	92	0	1.05	-15	-0.87	1692.71
	75	2	312	24	292	24	4	3C144	89	-8	1.04	-16	-1.04	1692.68
	75	3	282	17	274	54	3	3C161	101	-15	1.10	-13	-0.39	1692.64
	75	22	460	13	436	12	4	3C48	44	16	0.69	-41	-4.35	1692.90
B00316	76	2	338	45	379	44	3	3C144	88	-8	1.03	-17	-1.11	1692.74
	76	3	266	10	255	35	3	3C161	100	-15	1.09	-13	-0.40	1692.66
	76	22	443	15	468	19	4	3C48	43	17	0.68	-40	-4.43	1692.94
B00317	77	2	322	26	185	18	2	3C144	87	-8	1.03	-16	-1.08	1692.77
	77	3	306	68	328	18	2	3C161	99	-15	1.09	-14	-0.55	1692.73
	77	22	423	16	408	27	4	3C48	42	18	0.67	-41	-4.63	1692.97
B00318	78	2	226	32	212	62	2	3C144	86	-8	1.02	-17	-1.11	1692.71
	78	3	381	47	253	40	2	3C161	98	-15	1.08	-13	-0.64	1692.82
	78	21	321	9	321	9	4	3C48	41	18	0.66	-43	-5.27	1692.98
B00319	79	1	283	53	281	57	2	3C147	88	0	1.03	-14	-0.89	1692.80
	79	2	287	12	298	34	3	3C144	85	-8	1.02	-18	-1.26	1692.82
	79	22	328	10	305	9	3	3C48	40	19	0.64	-43	-5.29	1693.02
	79	23	214	11	232	16	2	3C144-	84	-8	1.01	-17	-1.19	1692.77
B00320	80	1	370	23	453	15	3	3C147	87	0	1.03	-15	-1.01	1692.90
	80	2	298	9	331	15	3	3C144	84	-8	1.01	-17	-1.24	1692.86
	80	3	322	11	385	52	2	3C161	97	-15	1.08	-14	-0.63	1692.86
	80	4	422	110	420	100	2	3C144+	84	-8	1.01	-16	-1.23	1692.93
	80	22	336	12	293	28	3	3C48	39	20	0.63	-44	-5.39	1693.07
B00321	81	1	218	16	287	12	3	3C144	83	-8	1.01	-17	-1.26	1692.81
	81	3	281	17	321	22	3	3C161	96	-15	1.07	-13	-0.56	1692.86
	81	22	310	14	266	26	3	3C48	39	21	0.63	-43	-5.55	1693.10
B00322	82	1	271	12	302	35	2	3C147	85	0	1.02	-16	-1.11	1692.90
	82	3	287	34	298	37	2	3C161	95	-15	1.07	-14	-0.65	1692.91
	82	21	298	9	278	17	3	3C48	38	22	0.62	-45	-5.87	1693.13
	82	23	217	13	315	22	2	3C144-	81	-8	1.00	-17	-1.38	1692.89
B00323	83	3	245	8	294	19	3	3C161	94	-15	1.06	-13	-0.55	1692.90
	83	4	257	21	267	64	2	3C144+	81	-8	1.00	-17	-1.33	1692.94

SOLAR WIND

Interplanetary Scintillations

MARCH 1980

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	83	21	300	8	323	23	3	3C48	37	22	0.60	-45	-5.90	1693.17
	83	23	383	16	377	16	3	3C144-	80	-8	0.99	-16	-1.30	1693.06
800324	84	0	290	12	254	53	2	3C147	84	0	1.01	-15	-1.11	1692.99
	84	1	342	11	387	43	3	3C144	80	-8	0.99	-17	-1.35	1693.04
	84	2	387	29	373	88	2	3C161	93	-15	1.06	-14	-0.79	1693.05
	84	21	315	9	329	23	3	3C48	36	23	0.59	-44	-5.83	1693.22
	84	23	276	19	403	53	2	3C144-	79	-8	0.99	-16	-1.36	1693.03
800325	85	0	282	47	284	32	2	3C147	83	0	1.01	-15	-1.14	1693.03
	85	1	353	16	376	43	3	3C144	79	-8	0.99	-17	-1.41	1693.09
	85	2	375	10	355	15	3	3C161	92	-15	1.05	-15	-0.87	1693.08
	85	21	348	9	355	15	4	3C48	35	24	0.57	-45	-5.73	1693.27
800326	86	1	371	17	406	19	2	3C144	78	-8	0.98	-17	-1.38	1693.13
	86	2	414	18	385	11	2	3C161	92	-15	1.05	-13	-0.78	1693.13
	86	21	356	10	385	23	4	3C48	35	25	0.57	-46	-5.76	1693.32
800327	87	1	321	43	367	44	3	3C144	77	-8	0.98	-17	-1.48	1693.14
	87	21	405	14	492	43	2	3C48	34	26	0.56	-46	-5.58	1693.37
800328	88	21	602	49	621	67	2	3C48	33	27	0.54	-47	-4.99	1693.44
800329	89	0	282	*	268	*	2	3C147	79	1	0.99	-16	-1.29	1693.18
	89	1	297	*	324	*	2	3C144	75	-8	0.97	-16	-1.49	1693.20
	89	2	326	*	341	*	2	3C161	89	-15	1.04	-15	-0.93	1693.20
	89	4	290	*	244	*	2	3C144+	75	-8	0.97	-17	-1.57	1693.20
	89	21	308	13	327	12	2	3C48	32	28	0.53	-46	-6.34	1693.42
800330	90	2	319	*	287	*	2	3C161	88	-15	1.03	-14	-0.91	1693.23
	90	4	283	*	232	*	2	3C144+	74	-8	0.96	-18	-1.65	1693.23
	90	21	379	107	311	18	2	3C48	32	29	0.53	-47	-5.89	1693.48
800331	91	0	330	40	371	25	2	3C147	77	1	0.98	-16	-1.40	1693.29
	91	1	385	17	383	17	4	3C144	73	-8	0.96	-18	-1.58	1693.33
	91	2	410	9	429	9	3	3C161	87	-15	1.03	-15	-1.05	1693.32
	91	4	422	87	390	52	2	3C144+	73	-8	0.96	-17	-1.53	1693.35
	91	19	261	49	237	39	2	3C459	22	21	0.37	64	0.37	1693.20
	91	21	355	11	375	39	4	3C48	31	31	0.52	-47	-6.15	1693.51
	91	22	415	18	437	44	2	3C144-	72	-8	0.95	-18	-1.60	1693.37

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

INFERRED IP MAGNETIC FIELD

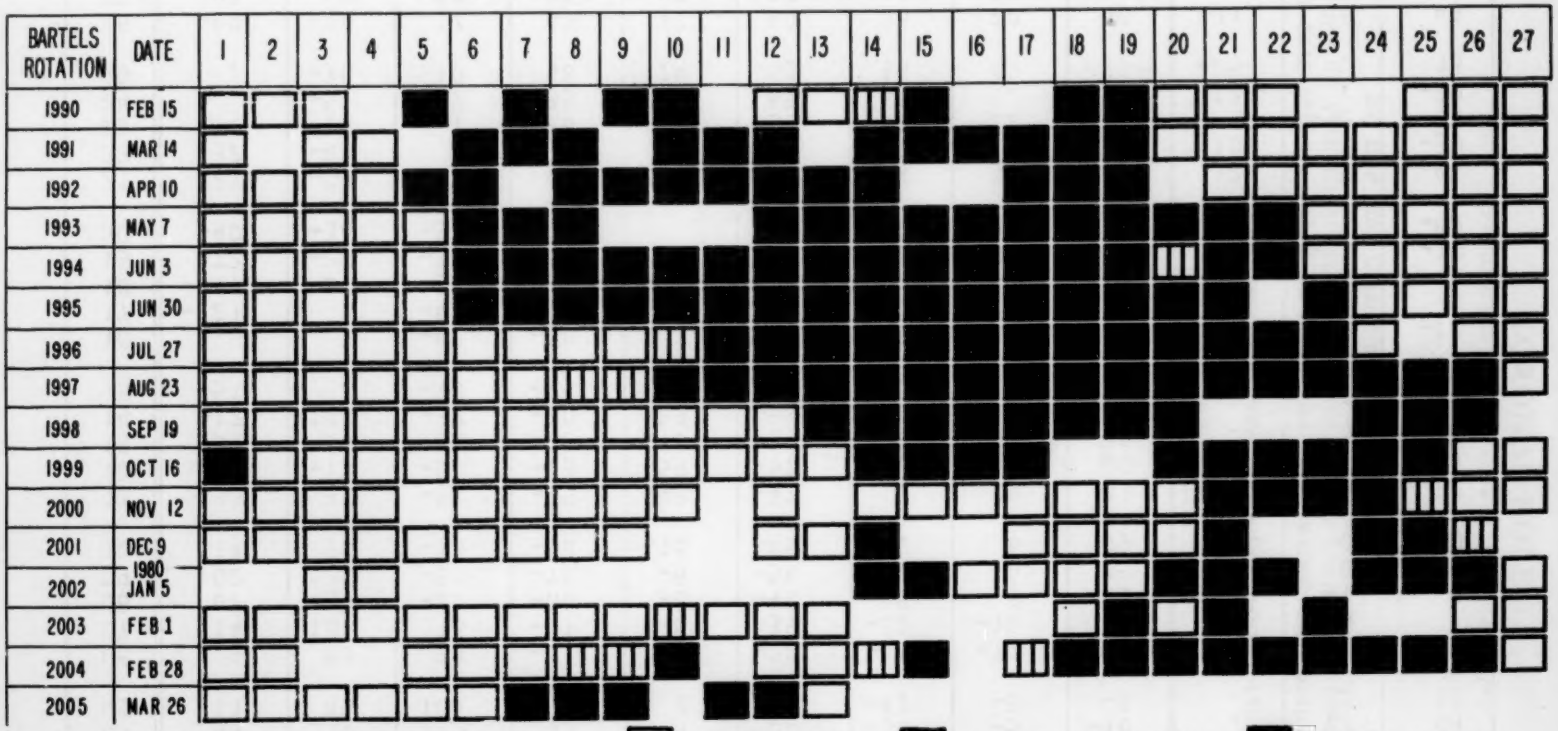
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1988	DEC 28		-	-	-	-			-	AT *			TA	TA T*		-	AT -	-	TA			-	TA -			-	TA		-
1989	1979 JAN 24		-			*		TA			TA		TA								*						AT		
1990	FEB 20	TA		-	TA -		TA			-	TA -	TA		TA		TA	A*	TA	A*	TA	A*				A*				
1991	MAR 19		AT			AT		T*						*	-	-	-	-	TA -		AT		T*	TA	TA	-	A*	-		TA	A*
1992	APR 15		A*	TA	T* AT			TA	TA		T*						TA	*	-	-	AT -	TA					A*		-	TA	
1993	MAY 12									-	-		AT			*		TA			AT	AT						-	-	-	-
1994	JUN 8	TA	TA	A*	TA					-		AT		-						T* -	TA		TA	T*		AT	T*	-	TA	
1995	JUL 5	TA	TA	AT		TA		AT	A*	TA	TA -			TA		AT				*				TA	T*					TA
1996	AUG 1			AT	A*	-			TA -	-	-		T*				*	-			AT					AT	*			
1997	AUG 28			-	A*						AT							-		-			T*	-	AT	TA -			TA	AT	
1998	SEP 24						A*		AT	-		TA		A*	*			TA		-			TA		TA		TA	TA -		*
1999	OCT 21								T*			TA	-		-					AT	AT *		AT							
2000	NOV 17	-	TA -			AT					*				AT				AT -	TA		-		TA			-			
2001	DEC 14				-				TA		TA		-	AT -				AT		AT *			TA	AT	T*				.	-
2002	1980 JAN 10						AT		-				-	TA	AT		T*	TA	AT							TA		A*		
2003	FEB 6		TA			-				A*							TA				-				*	TA	TA			
2004	MAR 4		AT		TA		AT		-	TA		-			T*		AT AT			TA			AT	AT	TA			TA -		-
2005	MAR 31																													

= definitely towards the sun = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLAS)

	1979								1980		
DAY	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH
01	-4	26	41	97	24	-5	-32	-6	16	-37	94	.
02	16	13	82	86	21	-8	-27	.	-3	-28	96	.
03	57	6	137	70	6	-36	-27	.	-24	1	87	50
04	44	10	115	35	4	-28	-36	-5	-18	.	72	53
05	11	45	104	-33	2	-20	-45	-8	-6	.	72	12
06	9	68	78	-61	-6	-24	-31	-17	-1	.	57	-1
07	14	101	15	-81	-8	-39	-22	-12	18	54	49	1
08	67	134	-27	-80	-8	-46	-45	-3	35	59	31	-8
09	102	126	-50	-70	-6	-54	.	-6	75	.	10	.
10	124	75	-76	-68	-16	-45	.	6	99	.	0	9
11	138	31	-82	-75	-43	-47	.	29	83	.	10	21
12	100	-13	-52	-23	-59	-67	-55	46	60	.	11	1
13	51	-66	-52	-23	-46	-74	-62	52	32	.	3	-7
14	-12	-104	-37	-20	-33	-53	-49	45	44	.	.	.
15	-51	.	-28	-24	-38	-41	.	26	29	.	.	-2
16	.	.	-42	-30	-61	-26	-6	.	20	.	.	-10
17	-121	.	-43	-26	-57	-18	20	13	18	.	.	-9
18	-117	-27	-35	-32	-41	3	29	41	.	-17	5	-8
19	-72	-29	-32	-16	4	15	25	35	.	-8	-13	-18
20	-40	-36	-37	-10	.	41	52	35	7	33	3	-42
21	-27	-34	-24	.	41	46	64	30	6	32	-7	-41
22	-32	-43	0	-16	55	64	69	.	-6	10	.	-39
23	-40	-56	-7	6	58	59	48	22	.	3	-32	-24
24	.	-51	-7	33	68	65	50	.	.	-12	.	-20
25	.	-30	10	58	74	63	35	12	35	-25	.	13
26	-99	-16	17	69	77	40	26	20	40	-31	6	43
27	-92	-17	29	83	47	37	16	27	27	.	43	53
28	-57	-4	47	92	40	24	3	24	23	-34	58	64
29	.	19	64	90	32	21	-9	39	-18	-26	57	84
30	3	10	93	82	1	7	-7	37	.	-13		75
31		9		53	-1		-22		.	29		25

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

MARCH 1980

Big Bear Solar Observatory

Only one D3 limb observation was made during the month of March.
These data are presented in numerical form rather than graphically.

Position angles of coronal hole boundaries (in degrees)

Date	North	South
14 March		179° to 166°

BOULDER GEOMAGNETIC SUBSTORM LOG

MARCH 1980

DATE	ONSET TIME	DIR	COMMENTS
03/01			Quiet day
03/02			Quiet day
03/03	1635		Slow onset, weak SS Arctic Village to Cape Perry.
03/04	0920	West	
03/05			Field unsettled 0300-1400 UT.
	1015	West	
03/06			Field slightly unsettled 0500-1730 UT.
	1005	West	
03/07			Field intermittently slightly unsettled.
03/08	0545		Several injections with recovery near 0745 UT. Mid/low-latitude stations and Alaskan chain from Talkeetna to Arctic Village unaffected by this SS.
03/09	0730	West	Weak SS
	0830	West	Weak SS
	1255		Slow onset, weak SS.
03/10	1000	West	Slow onset
03/11	0390	West	
03/12			Quiet day
03/13			Field slightly unsettled after 0700 UT.
03/14			Field intermittently slightly unsettled.
03/15			Quiet day
03/16	0935	West	Slow onset with recovery near 1200 UT.
03/17	1035	West	Weak SS
03/18			Quiet day
03/19	0618	SSC	Field active through 1600 UT.
	0740	≈ center	Weak SS
	0815	West	
03/20			Quiet day
03/21			Field active 0500-2000 UT.
	0710	≈ center	
03/22			Field unsettled 0400-1700 UT.
	1125	West	Moderate SS; numerous injections with recovery near 1700 UT.
03/23	1015	West	Weak SS
	1110	West	Weak SS
03/24			Field slightly unsettled after 0500 UT.
	1420		Weak SS, slow onset
03/25			Field slightly unsettled after 1700 UT.
03/26			Field active through 1500 UT.
	0230	East	Moderate ring current at mid/low-latitude stations through 0500 UT.
	0510	East	
	1030	West	
	1215	West	Moderate ss; several injections with recovery near 1420 UT.
03/27			Field unsettled 0730-1200 UT with no distinctive SS activity.
03/28			Field intermittently unsettled with no distinctive SS activity.
03/29			Field unsettled with no distinctive SS activity.
03/30			Field active 0100 to 0800 UT with no distinctive SS activity.
	2354	SSC	
03/31			Field active through 1600 UT.
	0830		Localized SS Ft. Simpson to Lynn Lake to Gillam.
	1100	West	Moderate SS; slow onset several injections. Weak positive impulse at 2105 UT, followed by sharp negative impulse at 2130 UT on H component at all mid/low-latitude stations.

CD 428 Part I (Prompt)

FEBRUARY 1980 DATA

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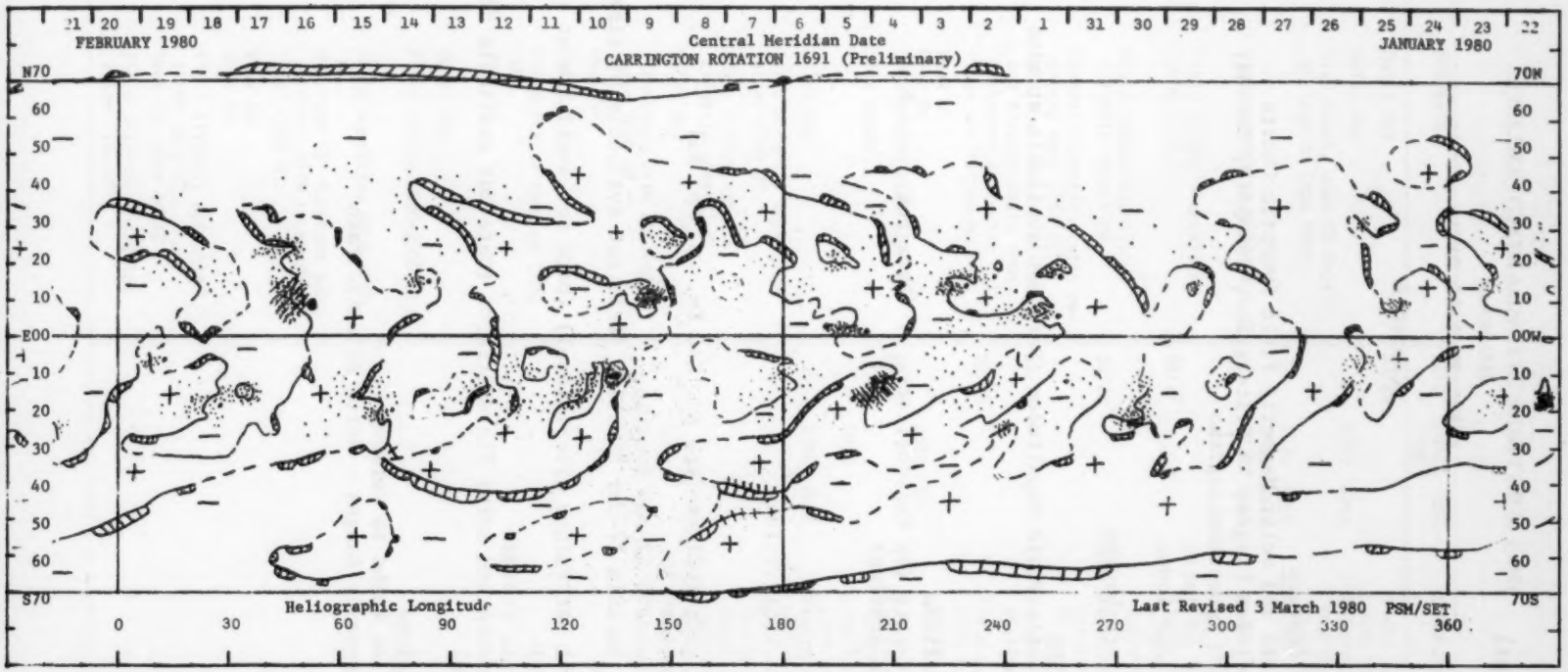
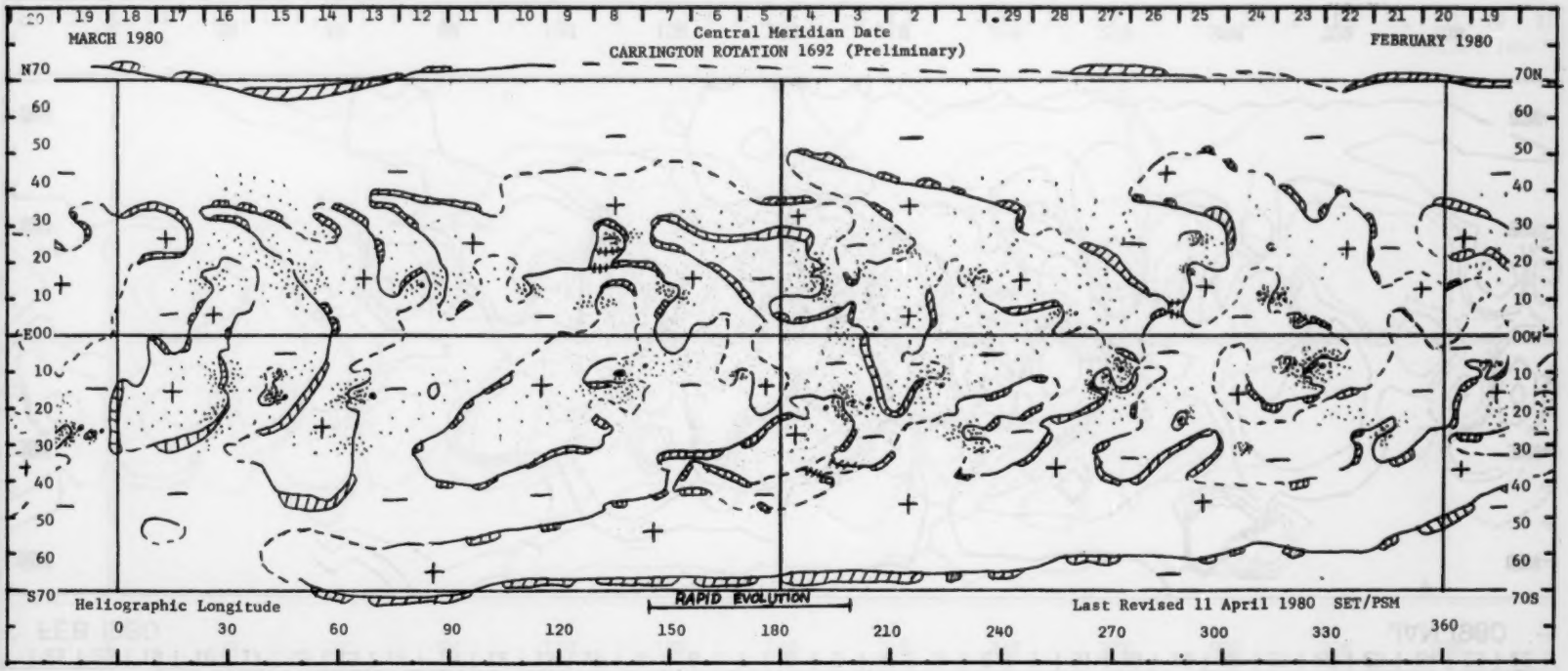
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1691 (PRELIMINARY)



Hα SYNOPTIC CHART

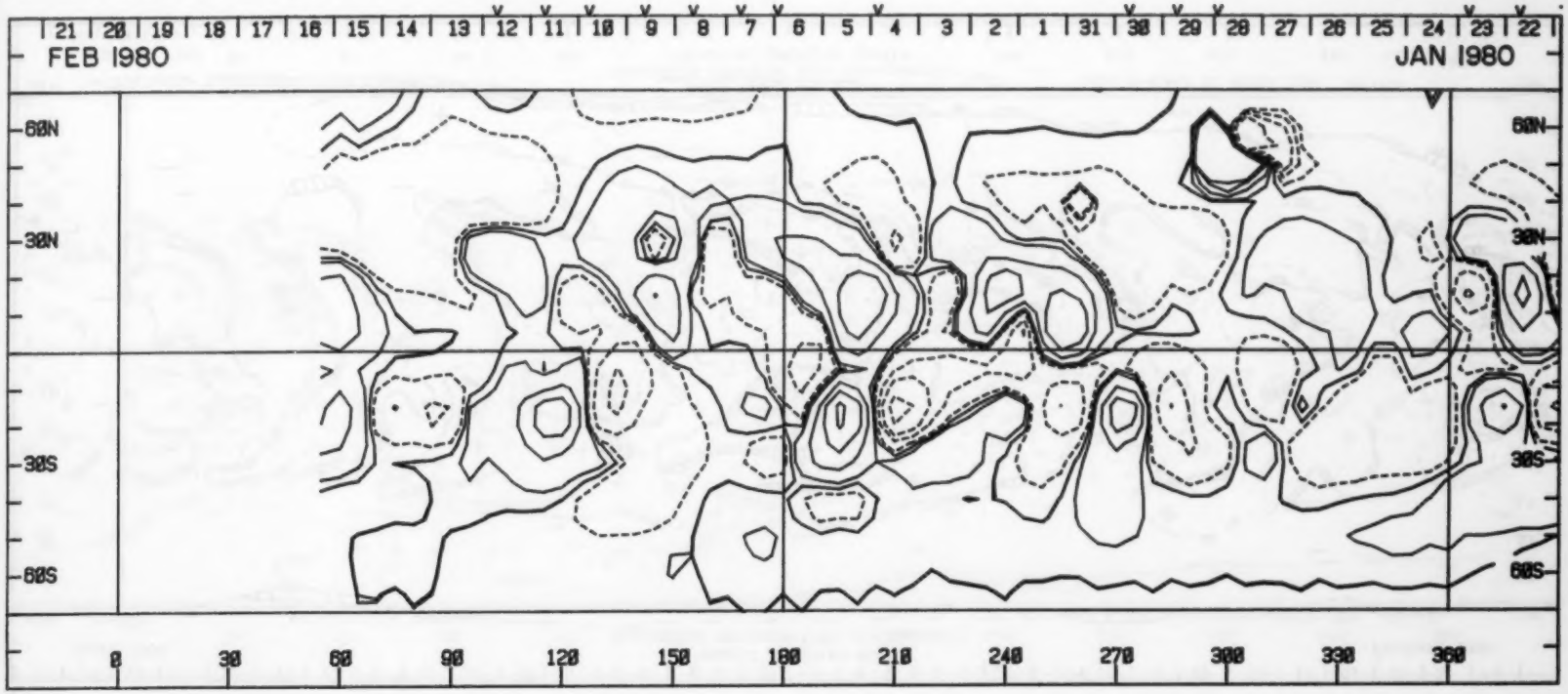
CARRINGTON ROTATION 1692 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1691

Stanford Solar Observatory

0.,±100.,200.,500... μT

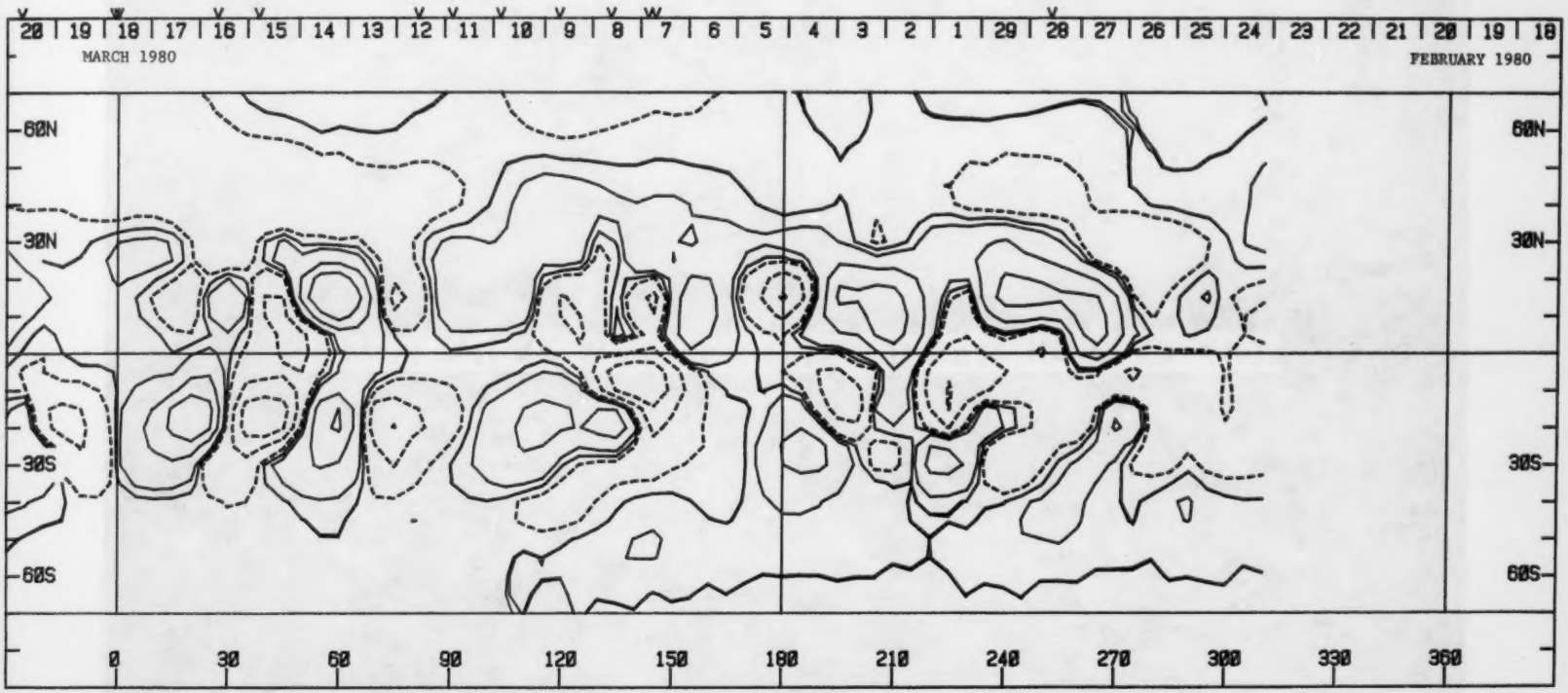


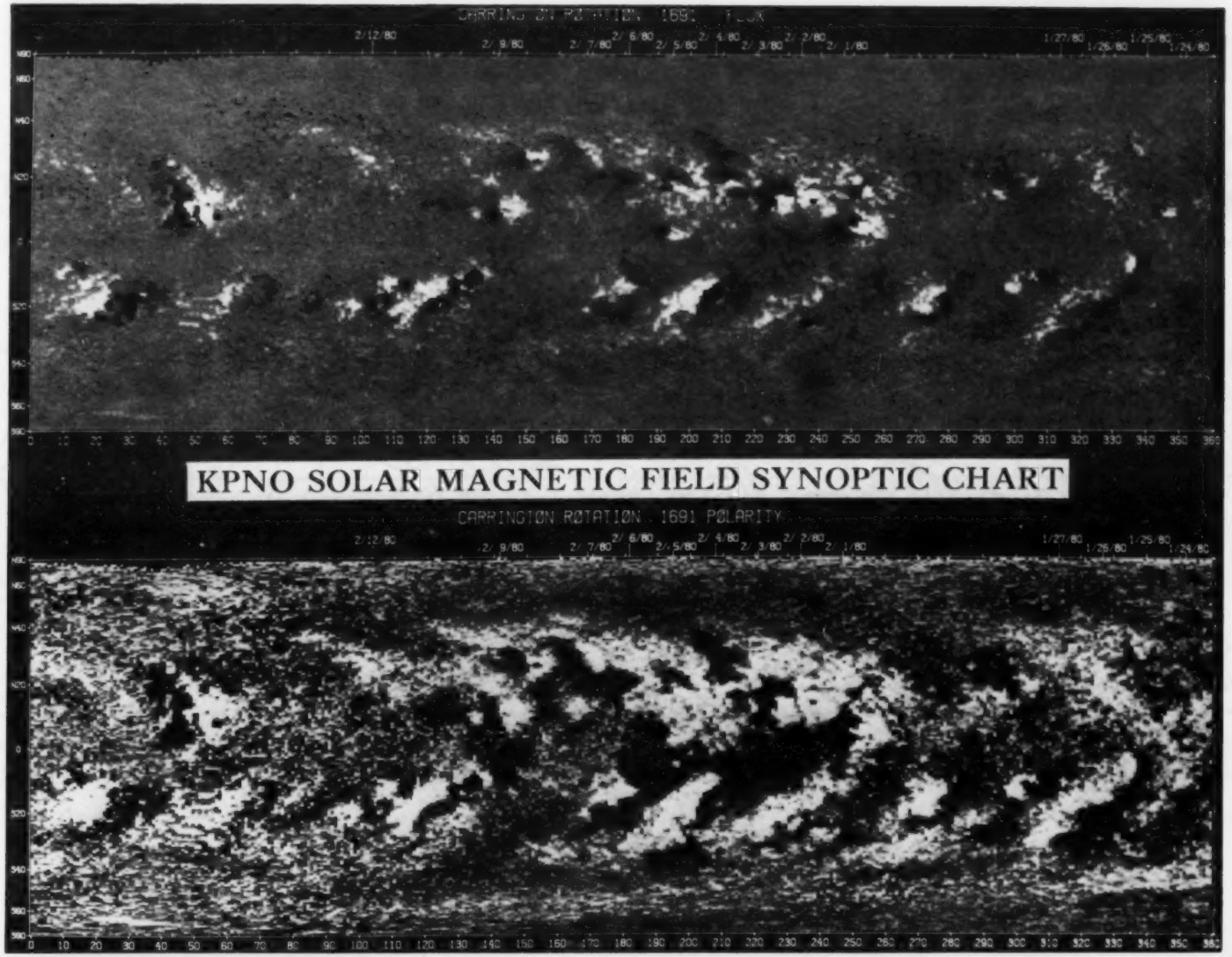
SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1692

Stanford Solar Observatory

0,±100,200,500... μT

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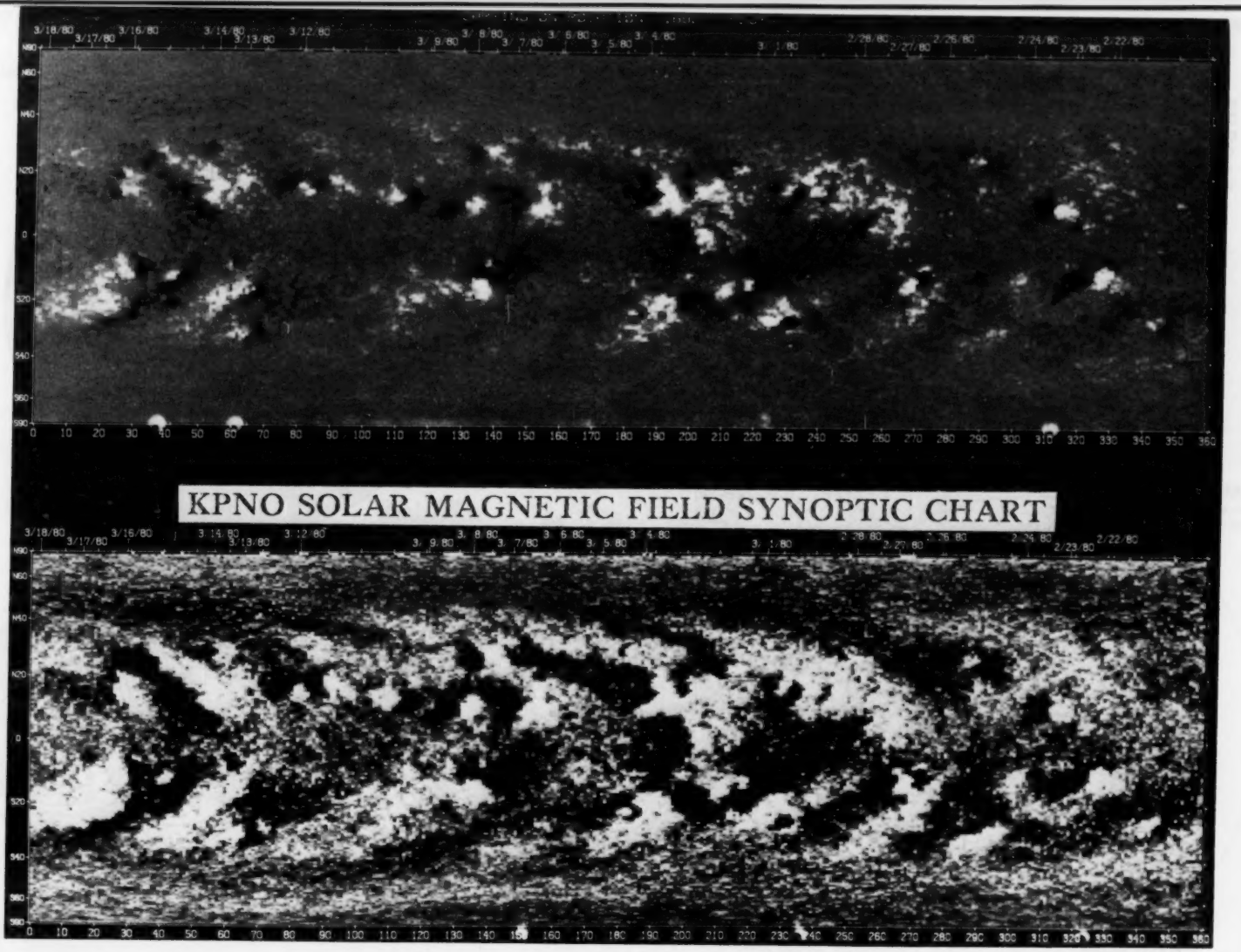
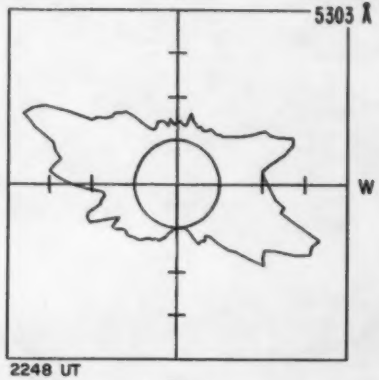
CARRINGTON ROTATION 1691 POLARITY


KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

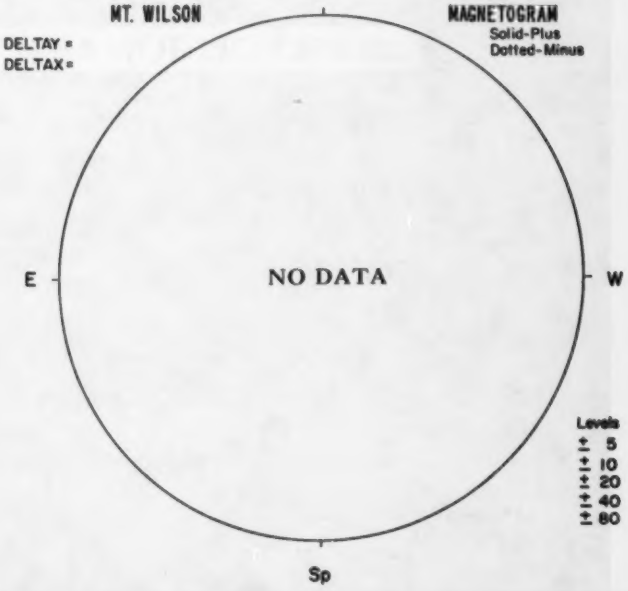
FEBRUARY 1, 1980 (P = -11.87, B_o = -5.99, L_o = 256.99)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

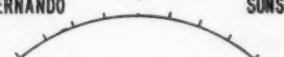
MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



01

SACRAMENTO PEAK Np Hα

SAN FERNANDO Np SUNSPOTS



HALE OBSERVATORIES Np CALCIUM REPORT

Sp

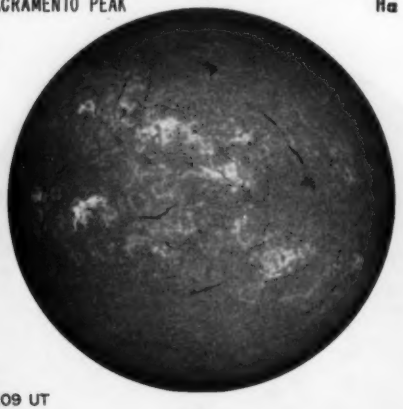
Sp

01

SACRAMENTO PEAK

Np

Hα



E

W

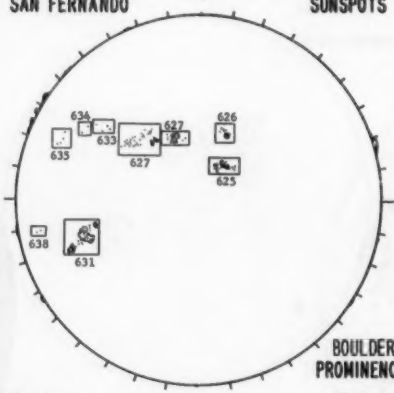
2209 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1910 UT

1740 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W

	POOR	JA
17-	0400	2.5
18-	0800	2.5
21-	0400	2.5
22-	2500	3.0
24-	0900	3.0
25-	1900	3.5
26-	1000	3.5
27-	5200	3.5
28-	0900	2.5
29-	0300	2.5
30-	0700	3.0
31-	4200	4.0
32-	0200	2.5
33-	0700	3.0
34-	1600	2.5
35-	0700	3.0
37-	0400	3.0
38-	1200	3.0

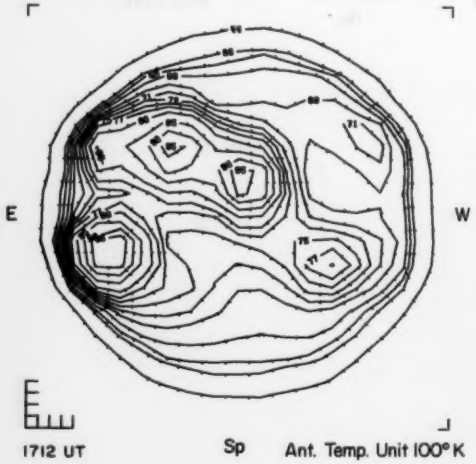
1907 UT

Sp

NOSC LA POSTA

Np

2.0 CM



E

W

1712 UT

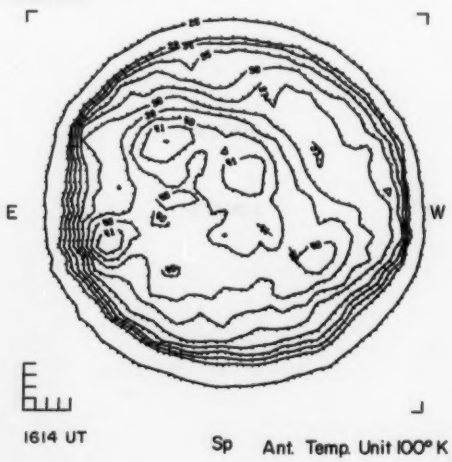
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1614 UT

Sp

Ant. Temp. Unit 100° K

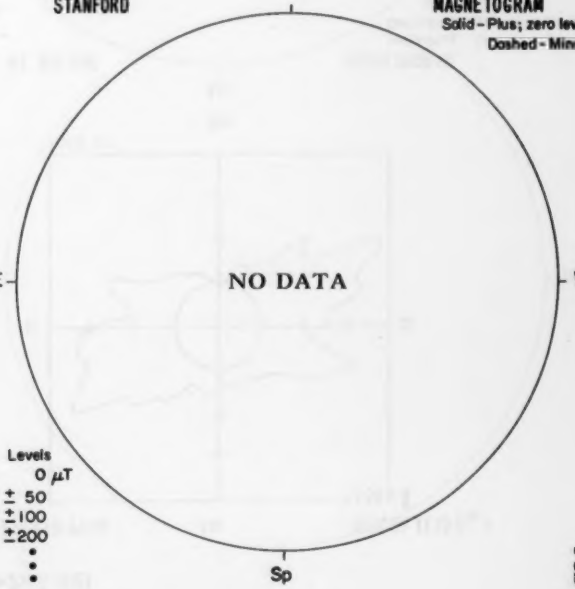
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

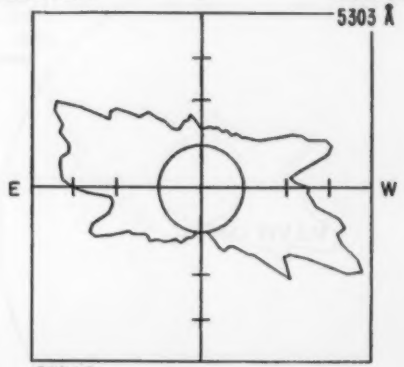
Sp

45

Feb 80

FEBRUARY 2, 1980 (P=-12.28, B_o=-6.06, L_o=243.82)

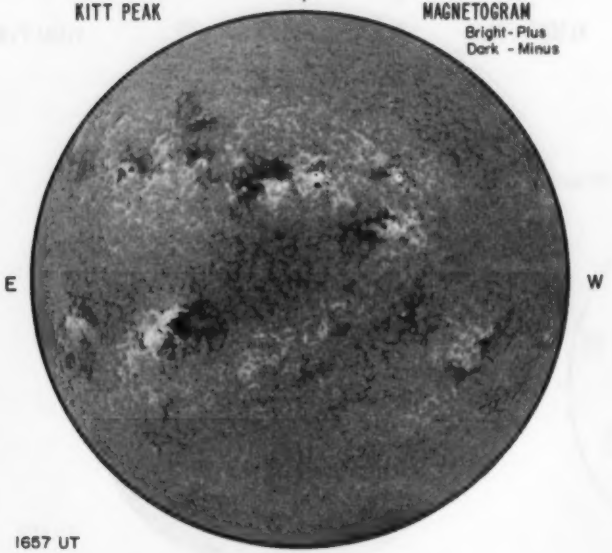
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1548 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

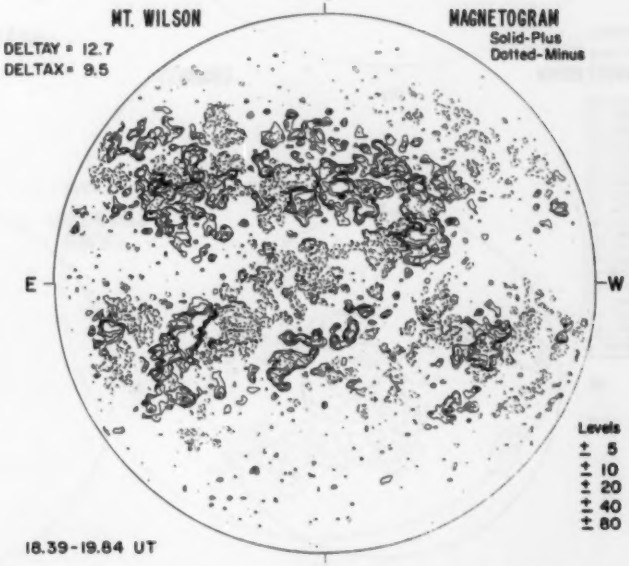


1657 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



18.39-19.84 UT

Sp

02

SACRAMENTO PEAK Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

02

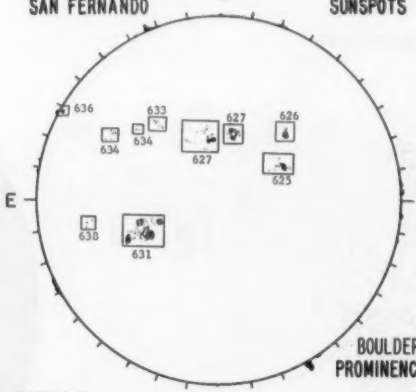
SACRAMENTO PEAK Np Hα

E W

1501 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

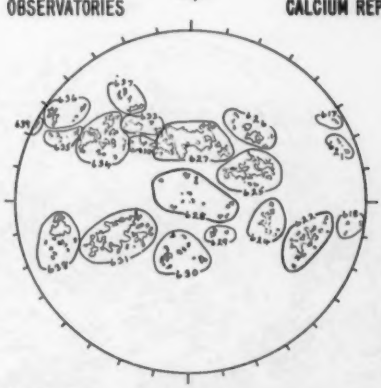
2055 UT

Sp

BOULDER PROMINENCES

1545 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2209 UT

Sp

GOOD	JA
18- 0300-2.5	
22- 1600-3.0	
24- 0900-3.0	
25- 2400-3.5	
26- 1000-3.0	
27- 4900-3.5	
29- 0200-2.5	
30- 0800-3.0	
31- 4400-4.0	
32- 0300-2.5	
33- 1100-3.0	
34- 2500-3.0	
35- 0300-3.0	
37- 0600-2.5	
38- 2100-3.0	
39- 0200-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Sp

Levels

0 μT

± 50

±100

±200

47

Feb 80

FEBRUARY 3, 1980 (P=-12.68, B_o=-6.13, L_o=230.66)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1705 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

E W

Levels
± 5
± 10
± 20
± 40
± 80

21.51-23.02 UT

Sp

03

SACRAMENTO PEAK Np Hα

SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

03

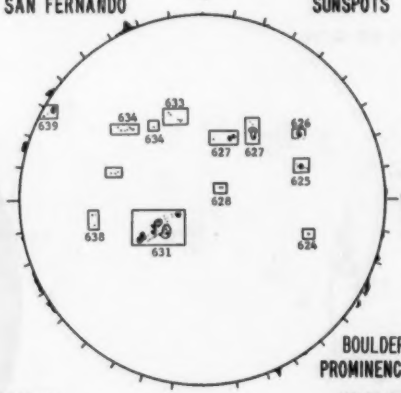
SACRAMENTO PEAK Np Hα

E W

1501 UT

Sp

SAN FERNANDO Np SUNSPOTS

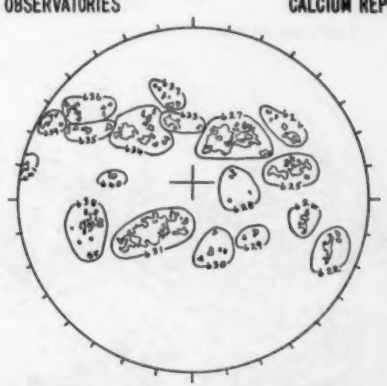


E W

1820 UT

Sp

HALE OBSERVATORIES Np CALCIUM REPORT



E W

2227 UT

Sp

POOR	JA

22- 0900-3.0
24- 0500-3.0
25- 1800-3.0
26- 1000-2.5
27- 4500-3.5
31- 4800-3.5
33- 0600-3.5
34- 2100-3.0
35- 0600-3.0
36- 1000-3.0
37- 0300-2.5
38- 1300-3.0
39- 0900-3.5
40- 0200-2.5
41- 0800-2.5

BOULDER PROMINENCES

1638 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

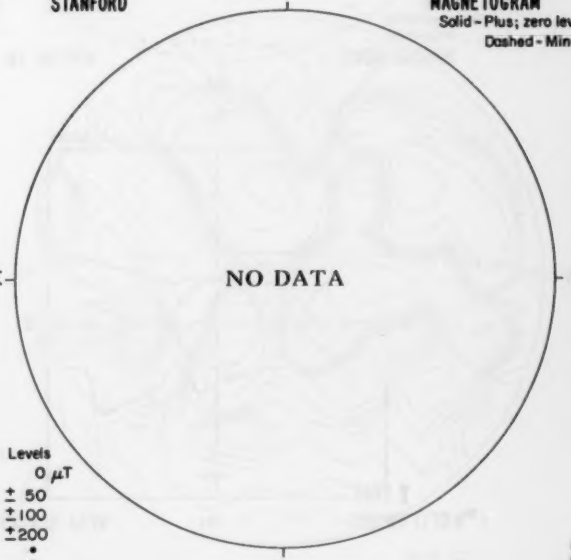
SCHEDULE

E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



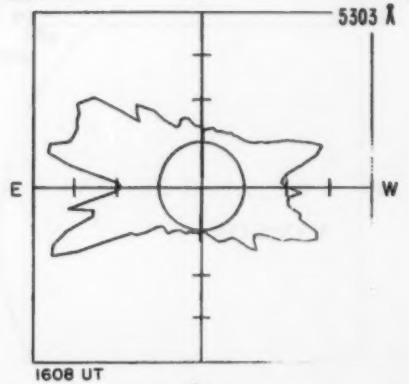
E W

Levels
0 μT
± 50
±100
±200

Sp

FEBRUARY 4, 1980 (P=-13.09, B_o=-6.20, L_o=217.49)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1608 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

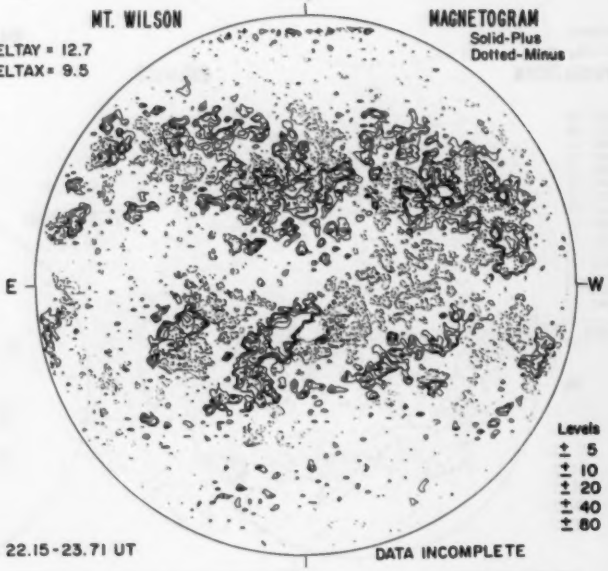
1701 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



22.15-23.71 UT DATA INCOMPLETE

Sp

04

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

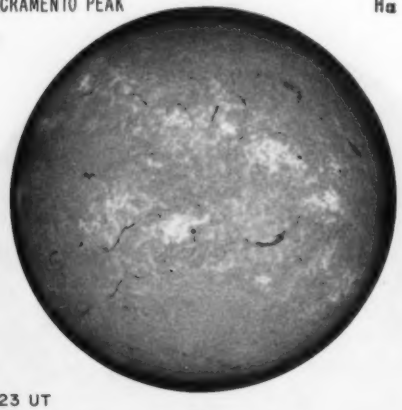
Sp

04

SACRAMENTO PEAK

Np

Hα



E

W

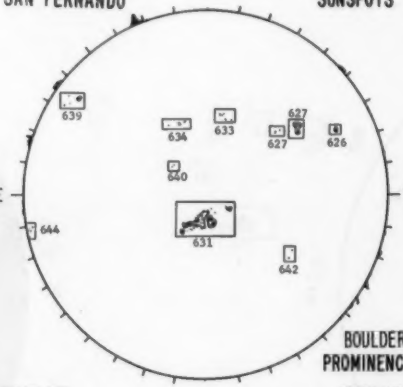
1523 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

2215 UT

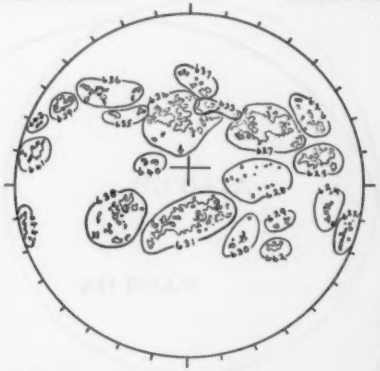
1537 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT



E

W

GOOD	JA

22- 0500-2.5
24- 0500-2.5
25- 2300-3.0
26- 0900-2.5
27- 5000-3.5
30- 0400-2.5
31- 5900-3.5
33- 0900-3.0
34- 3800-3.0
35- 0400-3.0
36- 1200-3.0
37- 0700-3.0
38- 1900-3.0
39- 1300-3.5
40- 0200-3.5
41- 1300-3.0
42- 0500-3.0
44- 1200-3.0

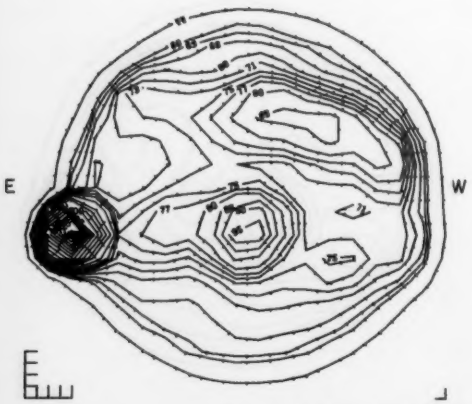
2313 UT

Sp

NOSC LA POSTA

Np

2.0 CM



E

W

2138 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

CLOUDY

E

W

2037 UT

Sp

Ant. Temp. Unit 100° K

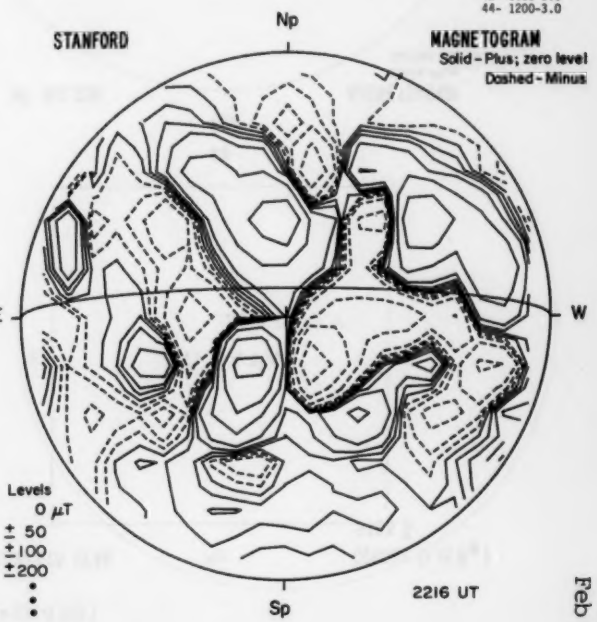
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

2216 UT

Sp

51

Feb 80

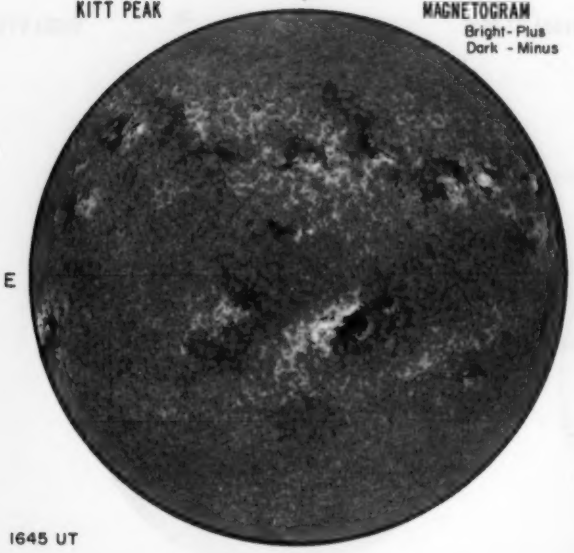
FEBRUARY 5, 1980 (P=-13.48, B_o=-6.26, L_o=204.32)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1645 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 60

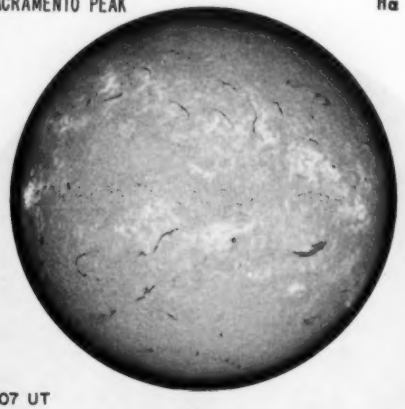
Sp

05

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

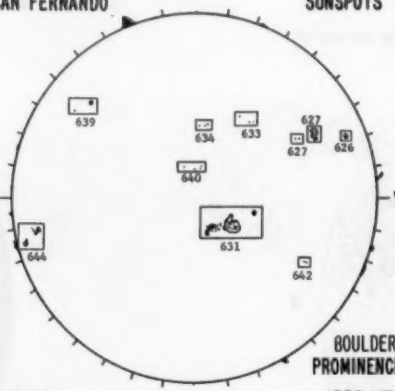
05

SACRAMENTO PEAK Hα



1507 UT

SAN FERNANDO SUNSPOTS



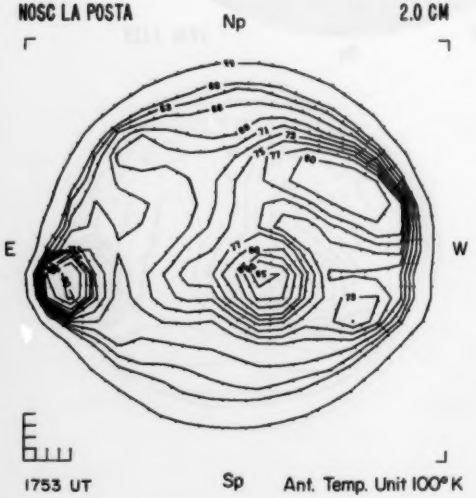
1815 UT

BOULDER PROMINENCES

1550 UT

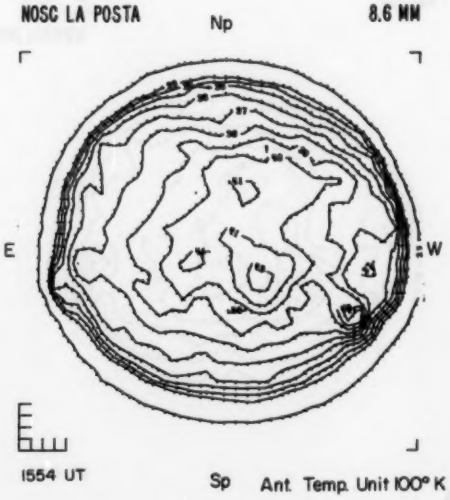
HALE OBSERVATORIES CALCIUM REPORT

NOSC LA POSTA 2.0 CM



1753 UT

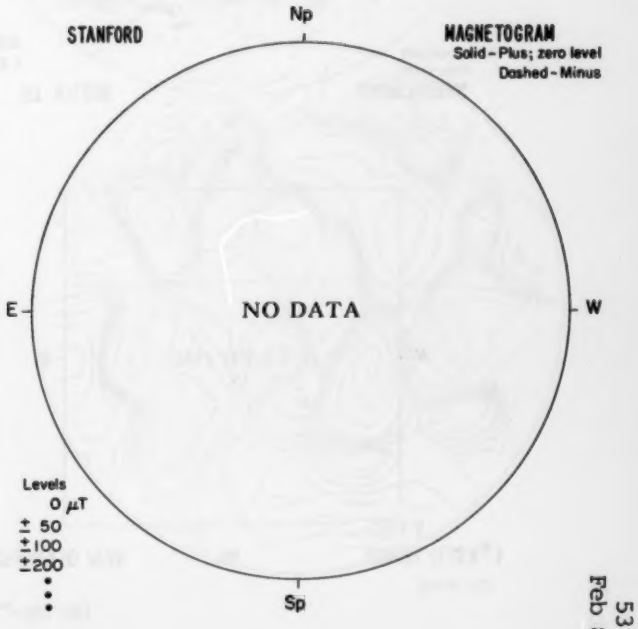
NOSC LA POSTA 8.6 MM



1554 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



FEBRUARY 6, 1980 (P=-13.87, B_o=-6.33, L_o=191.16)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

1716 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.8

E W

Levels
± 5
± 10
± 20
± 40
± 80

22.50-23.59 UT

Sp

06

SACRAMENTO PEAK Np Hα

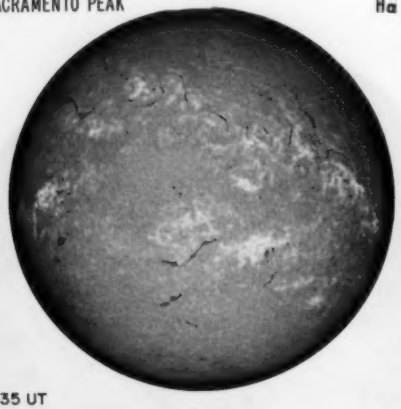
SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

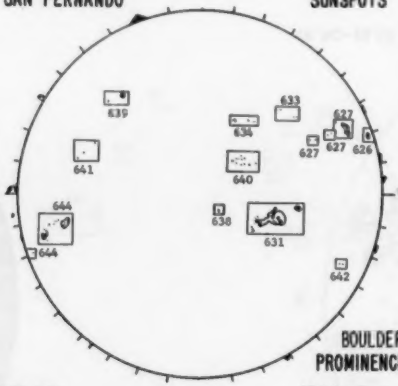
06

SACRAMENTO PEAK Np Hα



1535 UT Sp

SAN FERNANDO Np SUNSPOTS

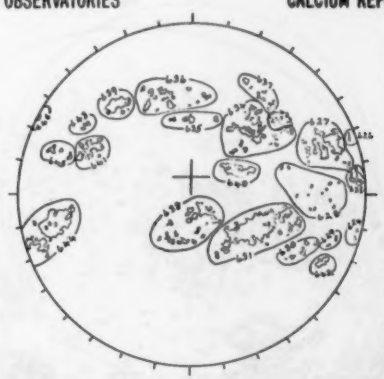


1905 UT Sp

BOULDER PROMINENCES

1644 UT

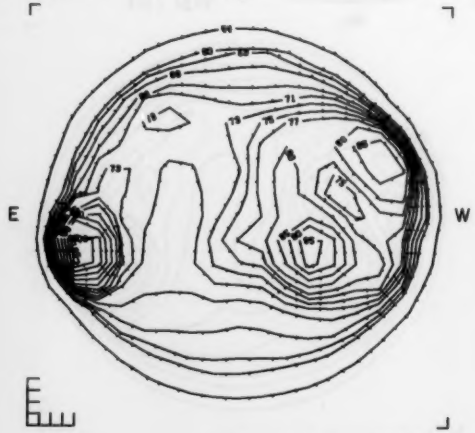
HALE OBSERVATORIES Np CALCIUM REPORT



2144 UT Sp

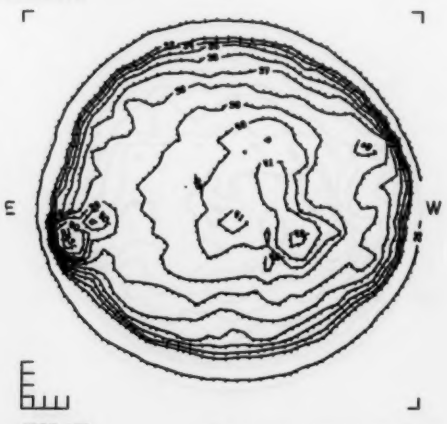
	GOOD	JA
25-	0700	2.5
27-	3100	3.0
31-	6400	3.5
33-	0500	2.5
34-	2400	3.0
35-	0500	3.0
36-	1300	3.0
37-	0500	2.5
38-	1800	3.0
39-	1300	3.0
40-	1300	3.5
41-	1300	3.0
42-	0600	3.0
44-	6000	4.0
45-	0500	2.5

NOSC LA POSTA Np 2.0 CM



1702 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

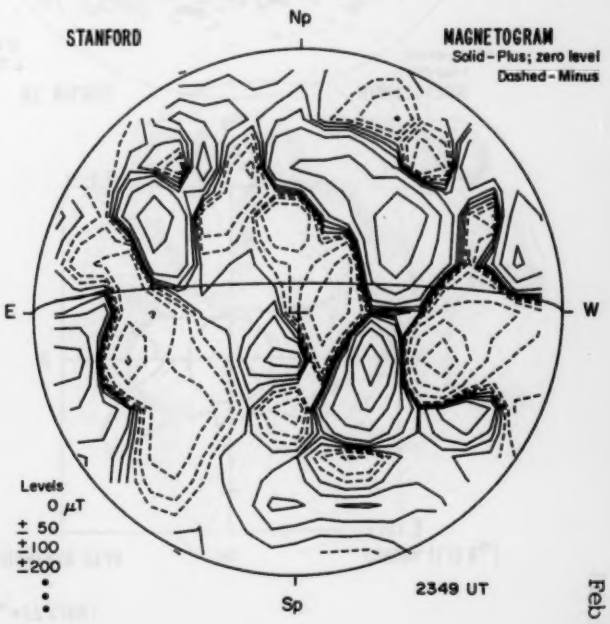


1553 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



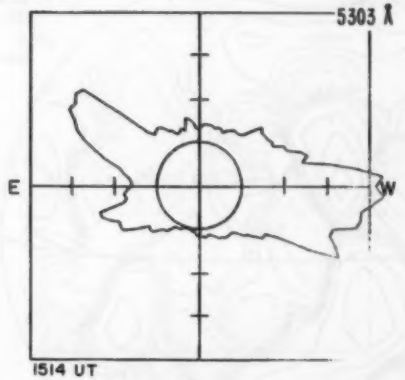
2349 UT Sp

55

Feb 80

FEBRUARY 7, 1980 (P=-14.26, B_o=-6.39, L_o=177.99)

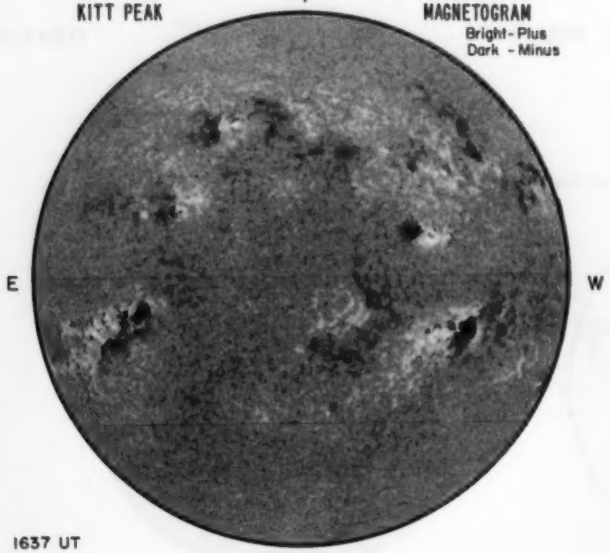
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1514 UT

Sp

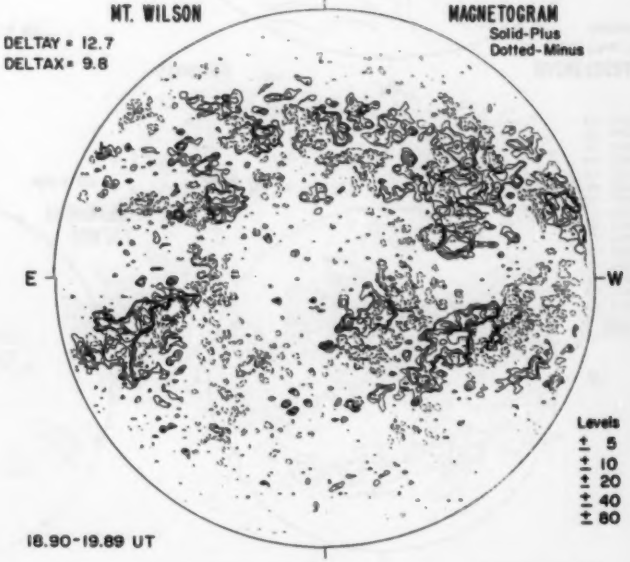
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1637 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.8



18.90-19.89 UT

Sp

07

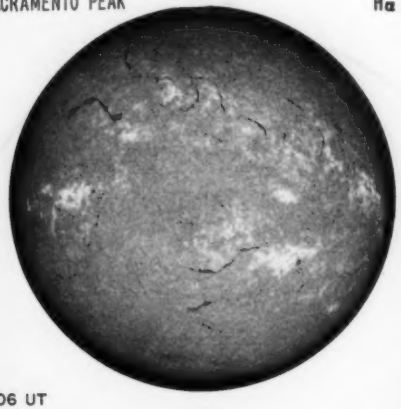
SACRAMENTO PEAK Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

07

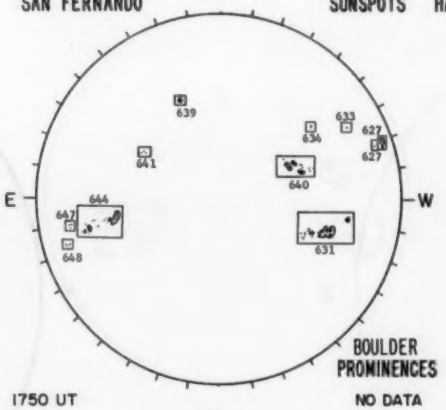
SACRAMENTO PEAK Np Hα



E W

1506 UT Sp

SAN FERNANDO Np SUNSPOTS



E W

1750 UT Sp

BOULDER PROMINENCES

NO DATA

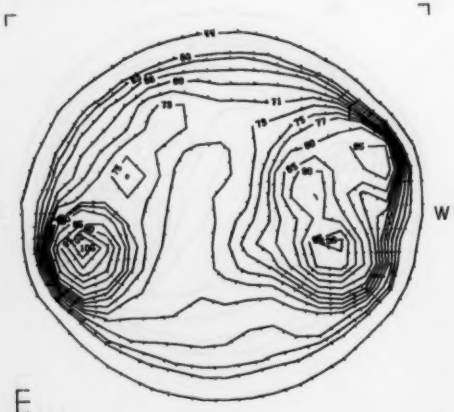
HALE OBSERVATORIES Np CALCIUM REPORT

NO DATA

E W

Sp

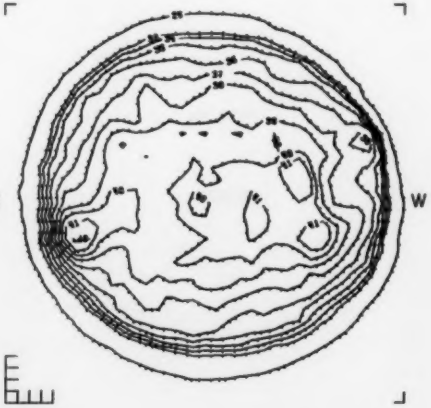
NOSC LA POSTA Np 2.0 CM



E W

1651 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



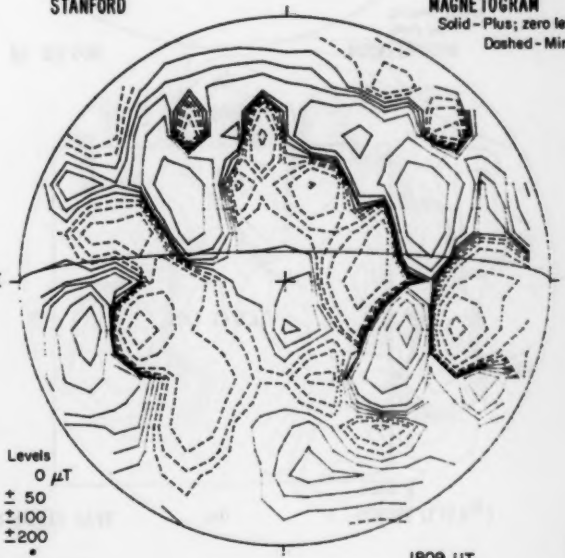
E W

1556 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1809 UT Sp

57

Feb 80

FEBRUARY 8, 1980 (P=-14.64, B_o=-6.45, L_o=164.82)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

E NO DATA W

Sp

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

08 Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

08

Np

Hα

NO DATA

E

W

Sp

SAN FERNANDO

Np

SUNSPOTS

639

634

633

645

641

640

647

644

646

631

E

W

1725 UT

Sp

HALE OBSERVATORIES

Np

CALCIUM REPORT

E

W

Sp

POOR	JA
27- 0300-2.5	
31- 4300-3.5	
33- 0300-2.5	
34- 2000-2.5	
35- 0300-2.5	
36- 0700-3.0	
37- 0300-2.5	
38- 1400-2.5	
39- 1500-3.5	
40- 1500-3.5	
41- 1800-3.5	
43- 0300-2.5	
44- 7000-3.5	
45- 0700-2.5	
46- 0300-3.0	
47- 0500-3.5	
48- 1000-3.0	
49- 0500-3.0	

BOULDER PROMINENCES

1600 UT

2342 UT

NOSC LA POSTA

Np

2.0 CM

E

W

1556 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

WEATHER

E

W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

1802 UT

Sp

59

Feb 80

FEBRUARY 9, 1980 (P=-15.01, B_o=-6.51, L_o=151.66)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å
E W
1626 UT
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus
E W
1716 UT
Sp

MT. WILSON Np MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.5
E W
Levels
± 5
± 10
± 20
± 40
± 80
16.89-18.67 UT
Sp

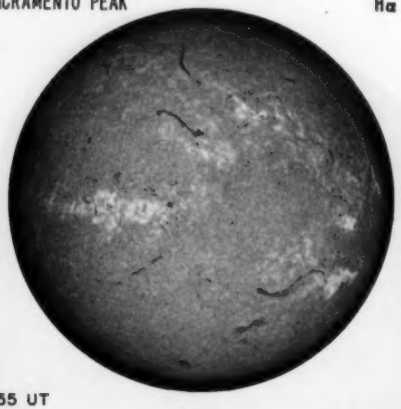
09
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

09

SACRAMENTO PEAK Np Hα

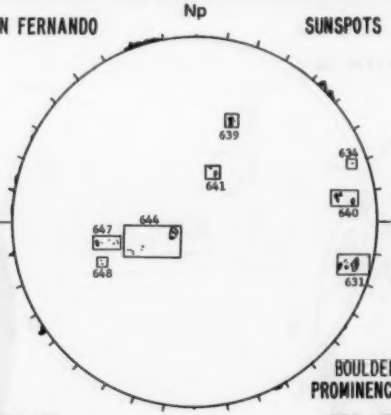


E W

1455 UT

Sp

SAN FERNANDO Np

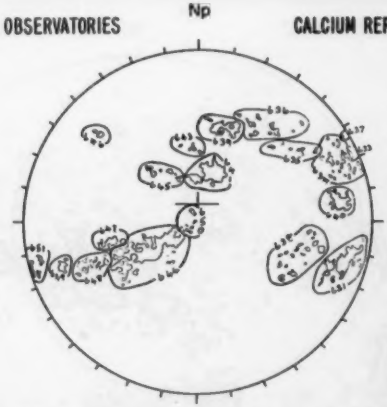


E W

1820 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np



E W

1823 UT

Sp

CALCIUM REPORT

	FAIR	JA
31-	3800	3.5
33-	0300	2.5
34-	1700	3.0
35-	0500	2.5
36-	1600	3.0
38-	1300	3.0
39-	1400	3.5
40-	1900	3.5
41-	2500	3.5
43-	0200	2.5
44-	6300	4.0
45-	0500	3.5
46-	0400	3.0
47-	0700	3.5
48-	1900	3.0
49-	0600	3.0
50-	0400	3.0
51-	0800	2.5

BOULDER PROMINENCES

1530 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT

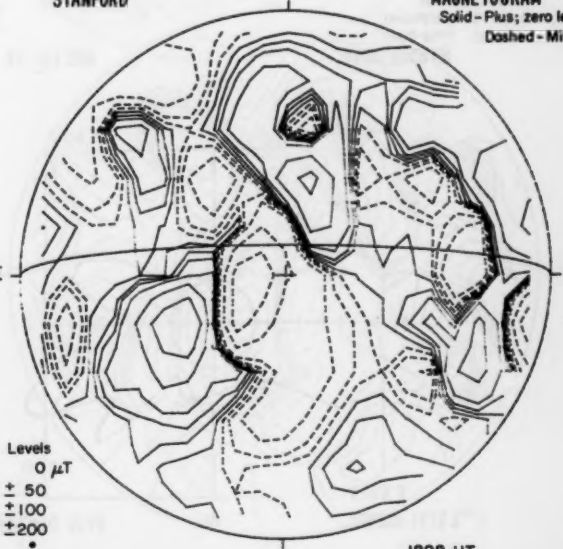
Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1808 UT

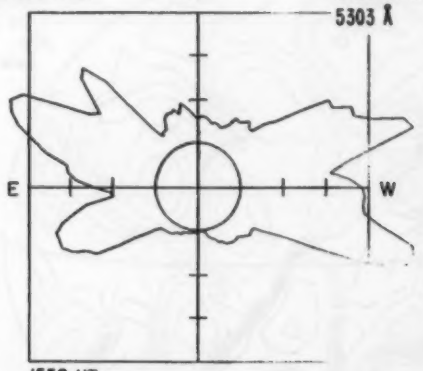
Sp

61

Feb 80

FEBRUARY 10, 1980 (P = -15.38, B_o = -6.56, L_o = 138.49)

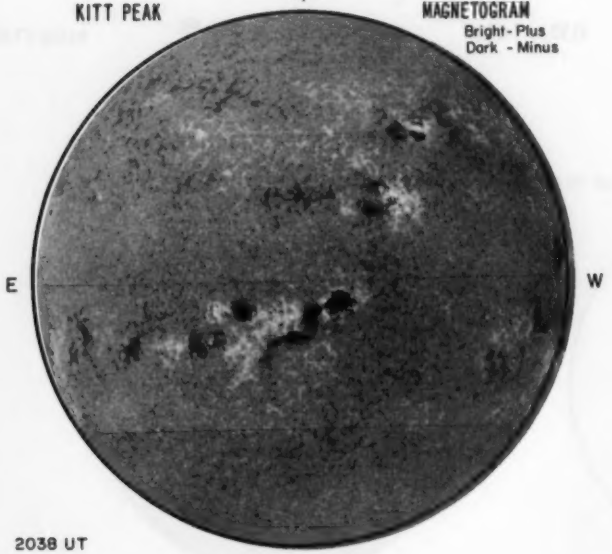
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1558 UT

Sp

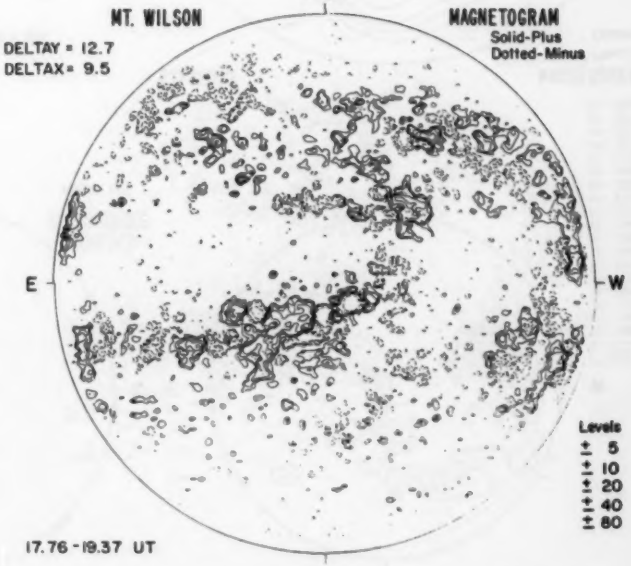
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



2038 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5

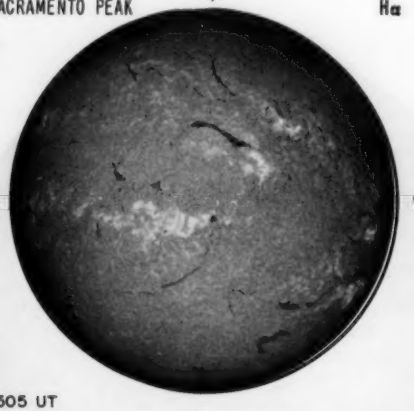


17.76 - 19.37 UT

Sp

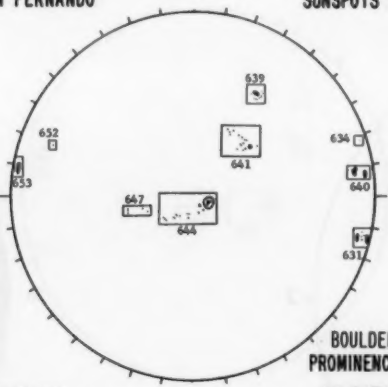
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

SACRAMENTO PEAK Hα



1505 UT

SAN FERNANDO



1725 UT

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

1857 UT

CALCIUM REPORT

GOOD	JA

31- 1300-3.0
36- 0900-2.5
38- 1000-2.5
39- 1100-3.5
40- 1300-3.0
41- 2500-3.5
44- 5200-4.0
45- 0200-3.0
46- 0200-3.0
47- 0800-3.5
48- 1100-3.5
49- 0500-3.5
51- 1300-2.5
52- 0100-2.5
53- 1900-4.5

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

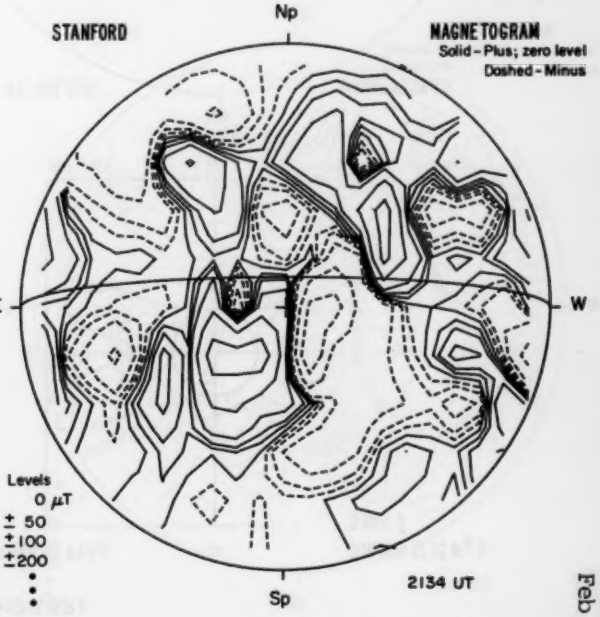
NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

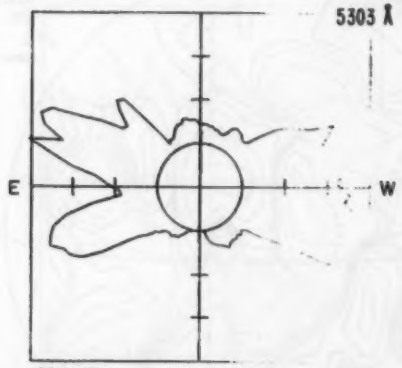


2134 UT

63
Feb 80

FEBRUARY 11, 1980 (P=-15.75, B_o=-6.62, L_o=125.32)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

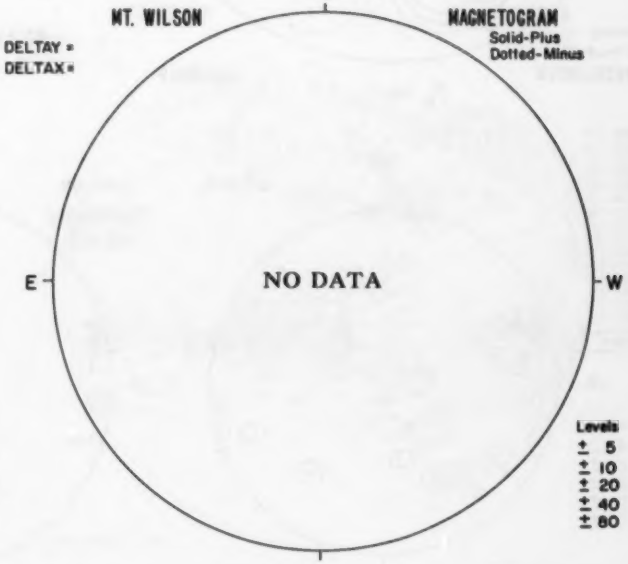


1601 UT Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

1720 UT Sp

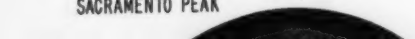
MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

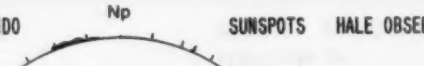


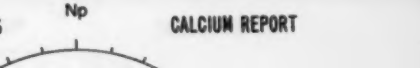
Sp

11

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT



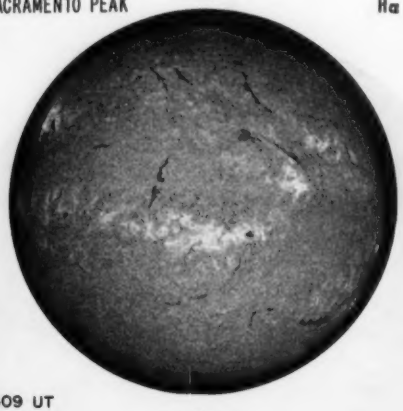




SACRAMENTO PEAK

Np

Hα



E W

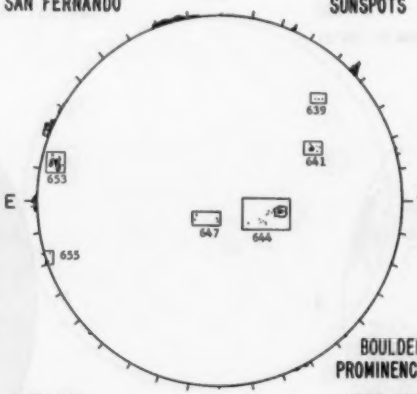
1509 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1850 UT

Sp

BOULDER PROMINENCES

1635 UT

HALE OBSERVATORIES

Np

E W

1756 UT

Sp

CALCIUM REPORT

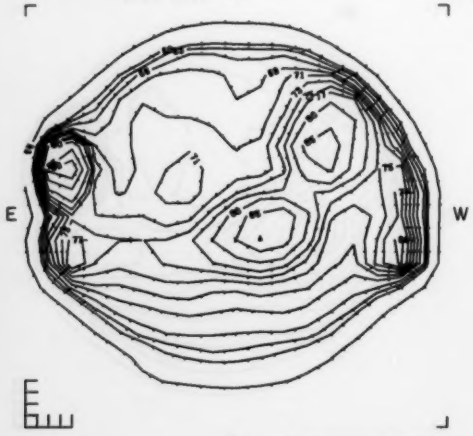
6000	JA

31- 1900-3.0
36- 0500-3.0
38- 0600-2.5
39- 1000-3.0
40- 1000-3.0
41- 2200-3.5
43- 0200-2.5
44- 5100-3.5
45- 0500-2.5
46- 0400-3.0
47- 0800-3.0
48- 1000-3.0
49- 0800-3.0
51- 1600-3.0
53- 4600-4.0
55- 1100-3.0

NOSC LA POSTA

Np

2.0 CM



E W

1603 UT

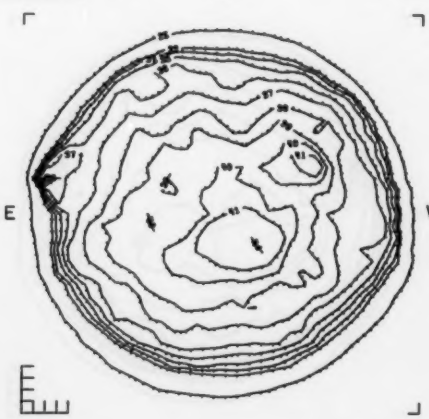
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1631 UT

Sp

Ant. Temp. Unit 100° K

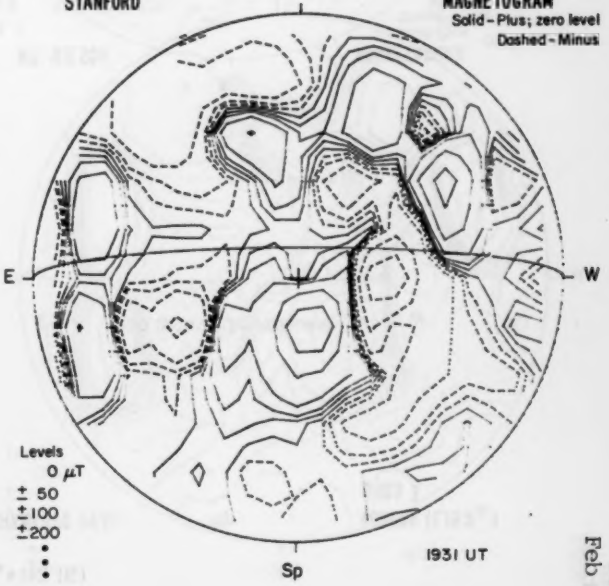
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1931 UT

Sp

65

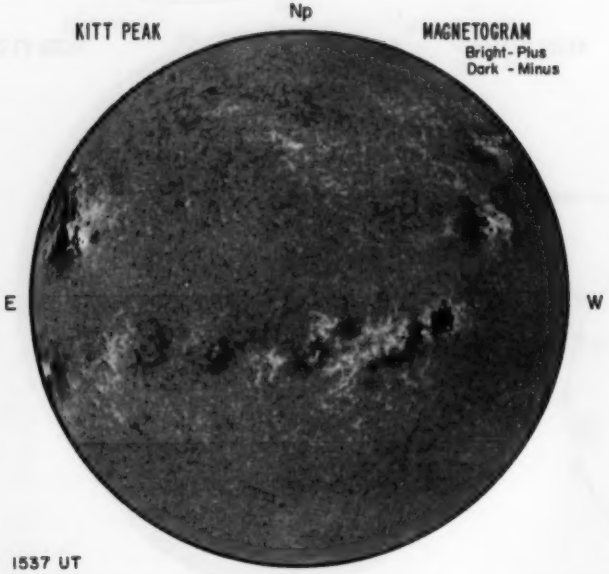
Feb 80

FEBRUARY 12, 1980 (P=-16.11, B_o=-6.67, L_o=112.16)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

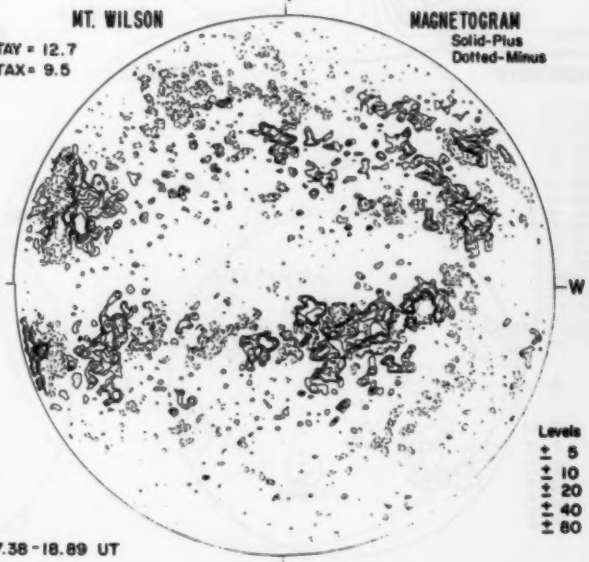
E NO DATA 12-20 FEBRUARY W

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



E W
1537 UT
Sp

Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



E W
Levels
±1 5
±1±1 10
±1±1±1 20
±1±1±1±1 40
±1±1±1±1±1 80
17.38-18.89 UT
Sp

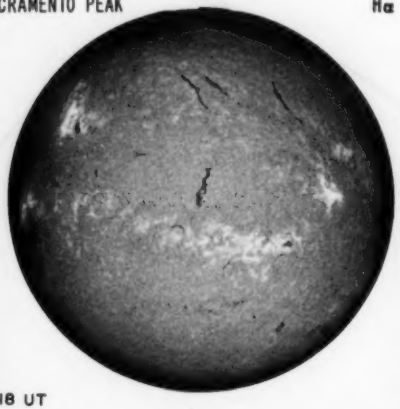
12
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

12

SACRAMENTO PEAK Np Hα

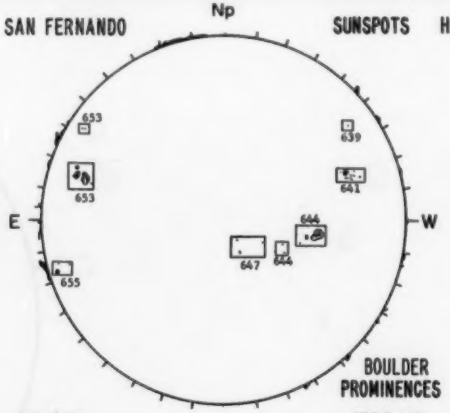


E W

1518 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

1712 UT

Sp

BOULDER PROMINENCES

1600 UT

HALE OBSERVATORIES Np CALCIUM REPORT

E W

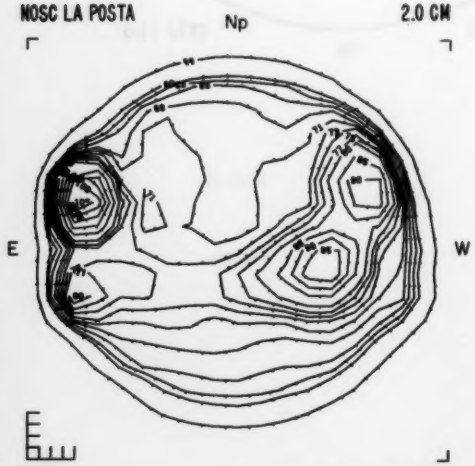
2230 UT

Sp

GOOD	JA

39- 0700-3.0
41- 2400-3.5
43- 0200-2.5
44- 4500-3.5
46- 0400-2.5
47- 0500-3.0
48- 1000-3.0
49- 0700-3.0
50- 0600-3.0
51- 1600-3.0
53- 8000-4.0
54- 0300-2.5
55- 4300-3.5

NOSC LA POSTA Np 2.0 CM

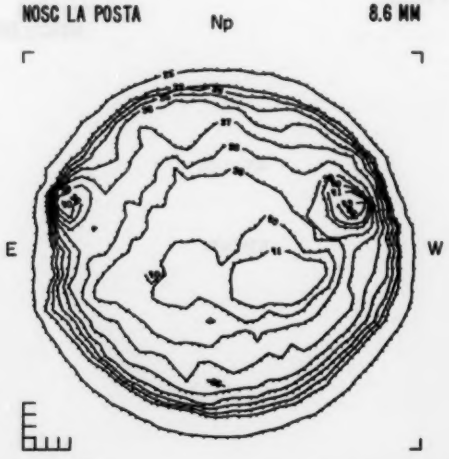


E W

1621 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



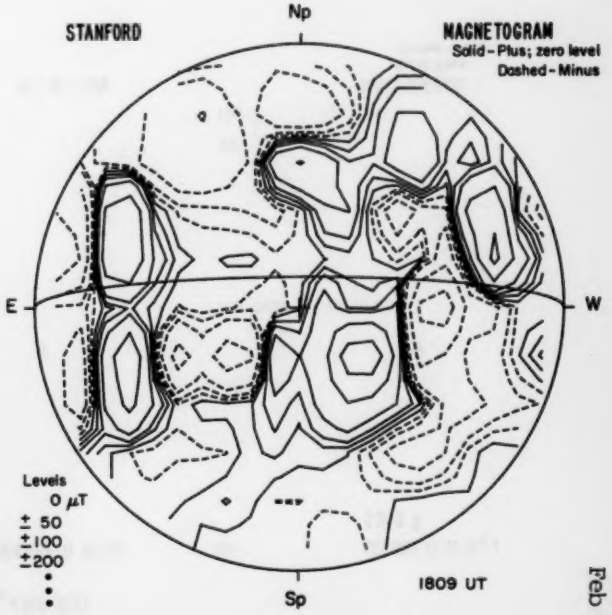
E W

1654 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
± 100
± 200

1809 UT

Sp

67
Feb 80

FEBRUARY 13, 1980 (P=-16.46, B_o=-6.72, L_o=98.99)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

NO DATA 13-21 FEB

E W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

NO DATA 13-24 FEB

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

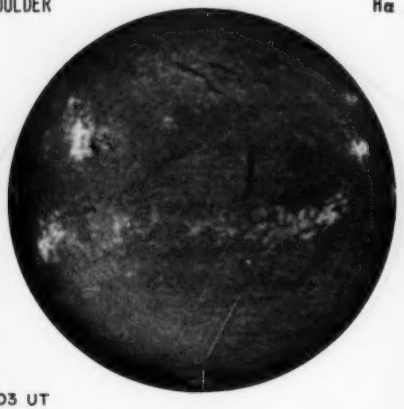
13

BOULDER Np Hα

BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

13

BOULDER Np Hα

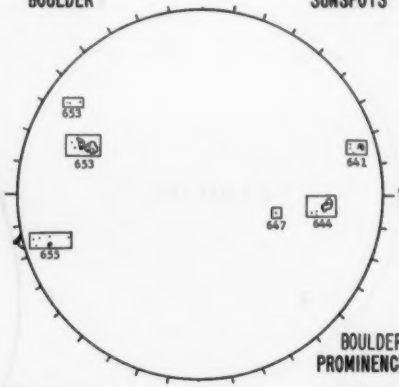


E W

1703 UT

Sp

BOULDER Np



E W E

1600 UT

Sp

SUNSPOTS HALE OBSERVATORIES Np

BOULDER PROMINENCES

1703 UT

Sp

CALCIUM REPORT

NO DATA 13-21 FEB

E W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

NO DATA 13-27 FEB

E W

Sp

69

Feb 80

FEBRUARY 14, 1980 (P = -16.81, B_o = -6.76, L_o = 85.82)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

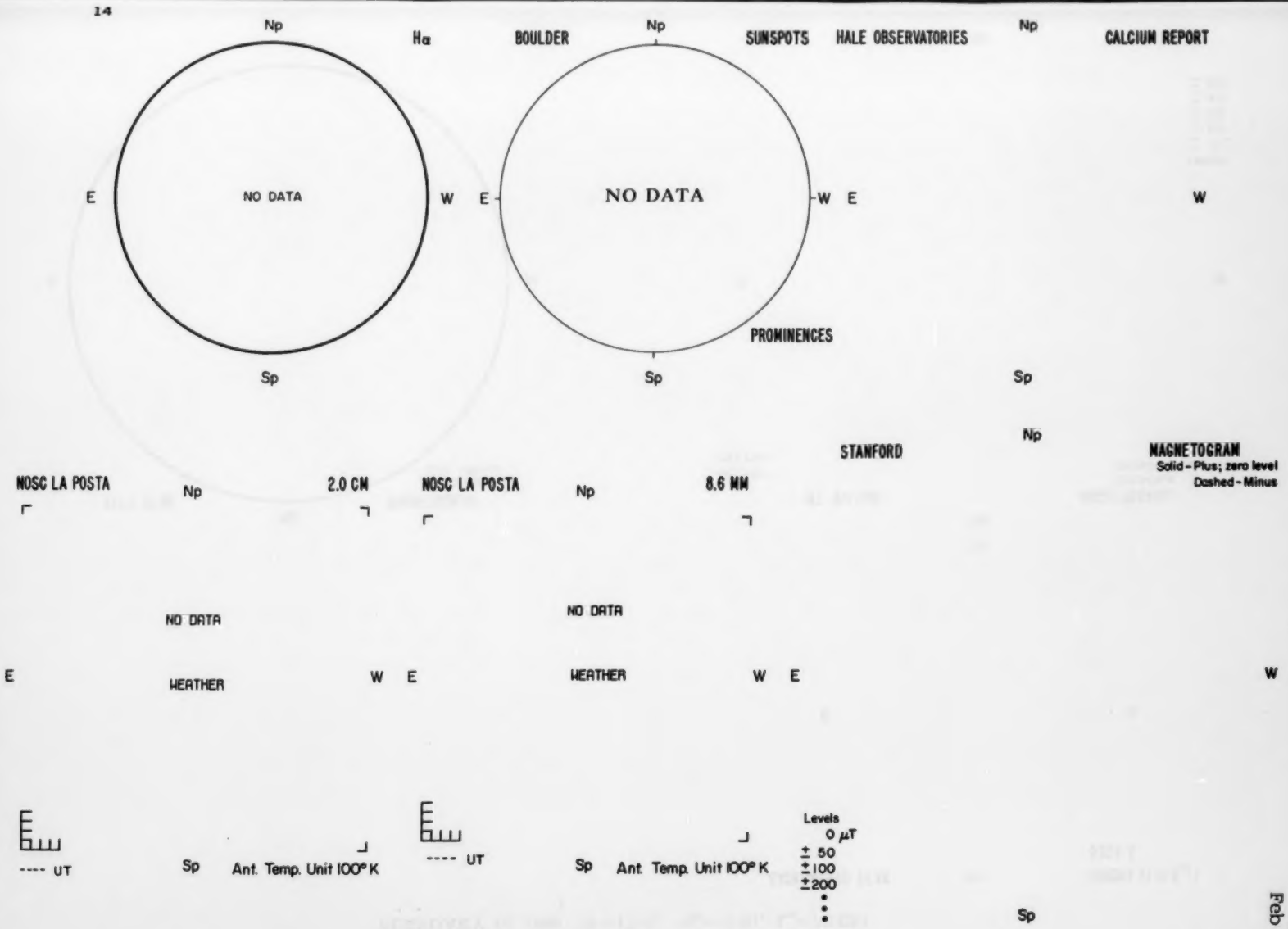
E W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

14

Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT


14
Np
Hα
BOULDER
Np
SUNSPOTS
HALE OBSERVATORIES
Np
CALCIUM REPORT
E
NO DATA
W
E
NO DATA
W
E
W
PROMINENCES
Sp
Sp
Sp
Np
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
NOSC LA POSTA
Np
2.0 CM
NOSC LA POSTA
Np
8.6 MM
NO DATA
NO DATA
E
WEATHER
W
E
WEATHER
W
E
W
---- UT
Sp
Ant. Temp. Unit 100° K
---- UT
Sp
Ant. Temp. Unit 100° K
Levels
0 μT
± 50
±100
±200
Sp

71
Feb 80

FEBRUARY 15, 1980 (P=-17.16, B_o=-6.81, L_o=72.65)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

E W

Sp

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

15

Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

15

Np

Hα

NO DATA

E

W

Sp

BOULDER

Np

NO DATA

E

W

E

PROMINENCES

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

Sp

CALCIUM REPORT

W

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

E

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

WEATHER

W

E

---- UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

W

73

Feb 80

FEBRUARY 16, 1980 (P=-17.50, B_o=-6.85, L_o=59.49)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

Sp

Np

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

Sp

MT. WILSON

DELTAY =
DELTAX =

E

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

16

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

HALE OBSERVATORIES

Np

CALCIUM REPORT

Sp

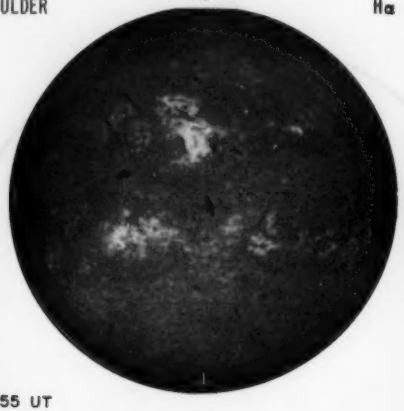
Sp

16

BOULDER

Np

Hα



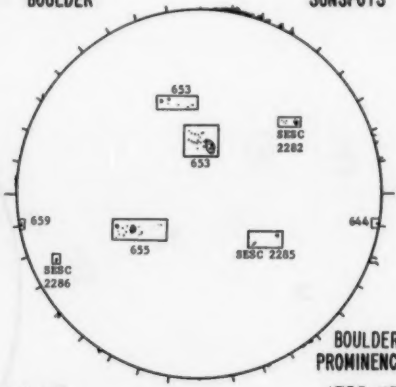
E W

1755 UT

Sp

BOULDER

Np



E W E

1730 UT

Sp

SUNSPOTS HALE OBSERVATORIES

Np

BOULDER PROMINENCES

1755 UT

Sp

Np

CALCIUM REPORT

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

SCHEDULE

W E

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

W

Levels

0 μT

± 50

±100

±200

Sp

75

Feb 80

FEBRUARY 17, 1980 (P=-17.83, B_o=-6.89, L_o=46.32)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

Sp

MT. WILSON
DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

17

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

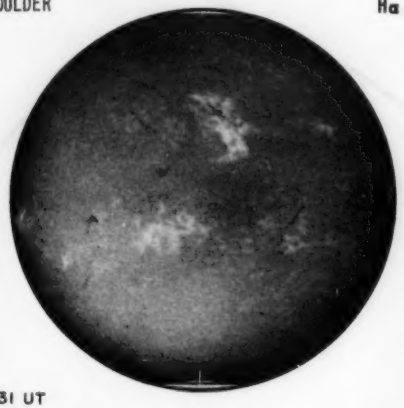
Sp

Sp

17

BOULDER

Np



E W

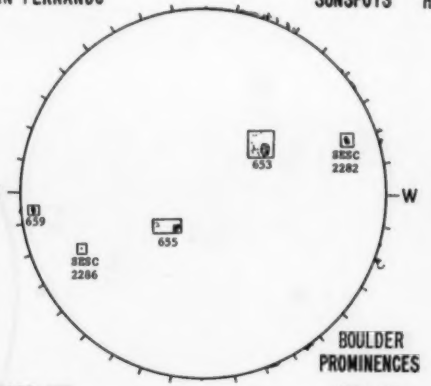
1731 UT

Sp

Hα

SAN FERNANDO

Np



E W E W E

2140 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

BOULDER PROMINENCES

1731 UT

Sp

Np

CALCIUM REPORT

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

SCHEDULE

W E

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

SCHEDULE

W E

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

•

W

Sp

77

Feb 80

FEBRUARY 18, 1980 (P = -18.16, B_o = -6.93, L_o = 33.15)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E W

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

Sp

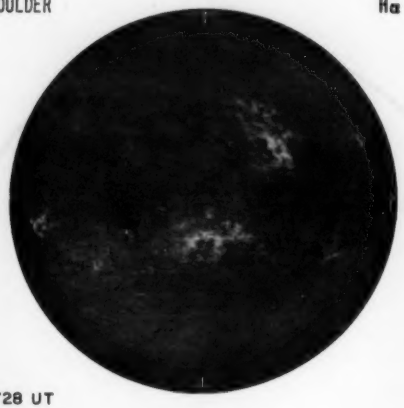
Levels
± 5
± 10
± 20
± 40
± 80

18

BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Np

BOULDER Hα



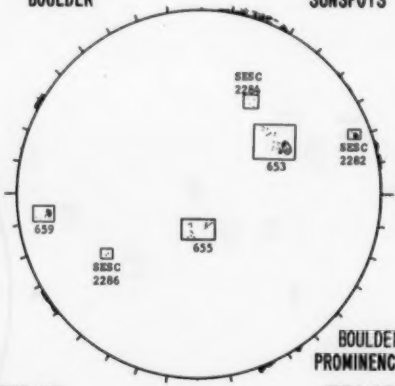
E W

1728 UT

Sp

Np

BOULDER



E W E

1748 UT

Sp

SUNSPOTS HALE OBSERVATORIES

BOULDER PROMINENCES

1728 UT

Np

CALCIUM REPORT

W

Sp

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

Np

STANFORD

NOSC LA POSTA Np 8.6 MM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

79

Feb 80

FEBRUARY 19, 1980 (P = -18.48, B_o = -6.97, L_o = 19.98)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

W

Sp

Np

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

W

E

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

19

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

HALE OBSERVATORIES

Np

CALCIUM REPORT

Sp

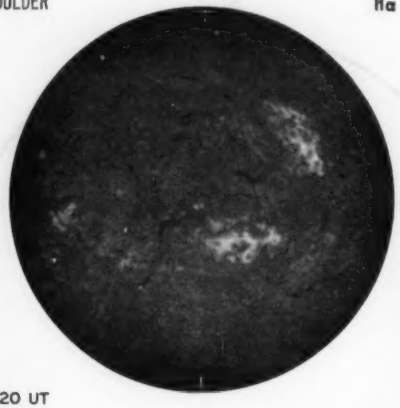
Sp

19

BOULDER

Np

Hα



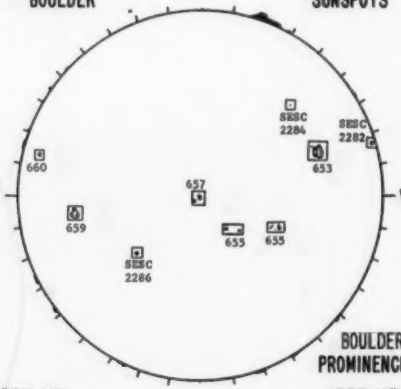
E W

1520 UT

Sp

BOULDER

Np



E W E

1500 UT

Sp

SUNSPOTS HALE OBSERVATORIES

BOULDER PROMINENCES

1520 UT

Np

CALCIUM REPORT

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E WEATHER W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

WEATHER

W E

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

•

W

Sp

81

Feb 80

FEBRUARY 20, 1980 (P=-18.79, B_o=-7.00, L_o=6.81)

SACRAMENTO PEAK Np

CORONA (1.15 $R_\odot$)
5303 Å

E W

Sp
Np

KITT PEAK Np

MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

20

Np

Hα SAN FERNANDO Np

SUNSPOTS HALE OBSERVATORIES Np

CALCIUM REPORT

Sp

Sp

20

Np

Hα

E

NO DATA

W

Sp

SAN FERNANDO

Np

660

653

657

659

655

655

E

W E

1800 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

W

BOULDER PROMINENCES

NO DATA

Sp

CALCIUM REPORT

Np

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

WEATHER

W E

---- UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

•

•

•

W

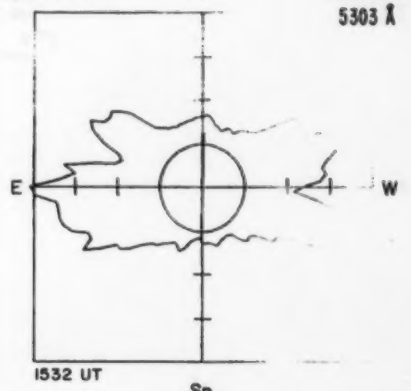
Sp

83

Feb 80

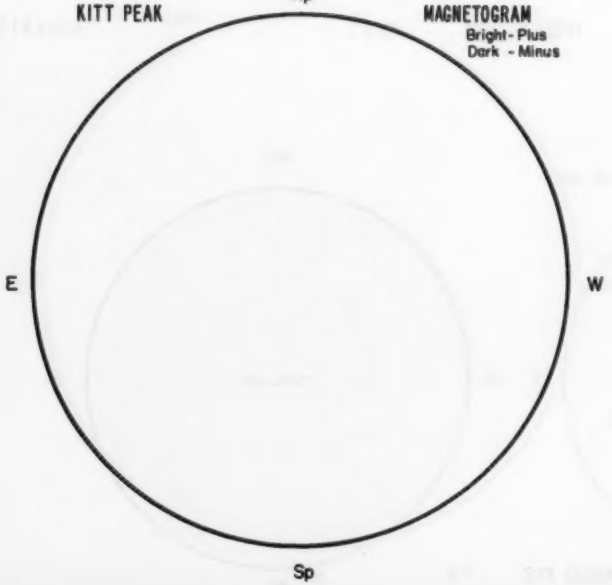
FEBRUARY 21, 1980 (P = -19.10, B_o = -7.03, L_o = 353.64)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

Levels
5
10
20
40
80

21

BOULDER Np Hα BOULDER Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

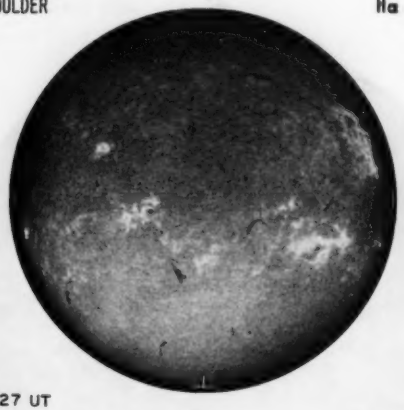
Sp

21

BOULDER

Np

Hα



E W

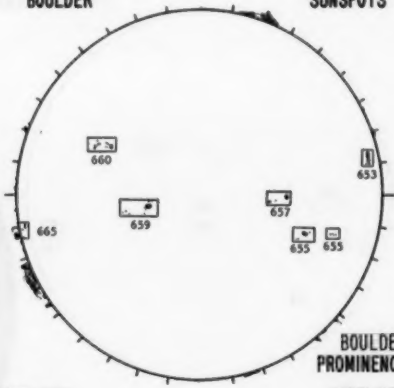
1527 UT

Sp

BOULDER

Np

SUNSPOTS



E W E

1500 UT

Sp

HALE OBSERVATORIES

Np

BOULDER PROMINENCES

1527 UT

Sp

CALCIUM REPORT

Np

E W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

W

---- UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

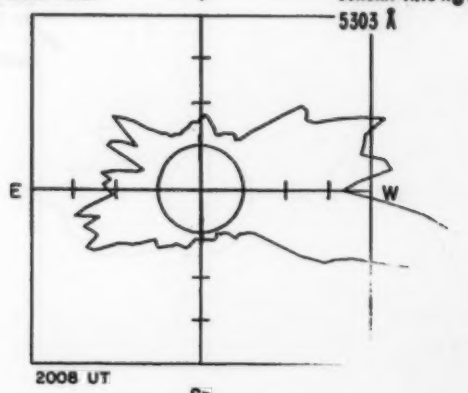
Sp

85

Feb 80

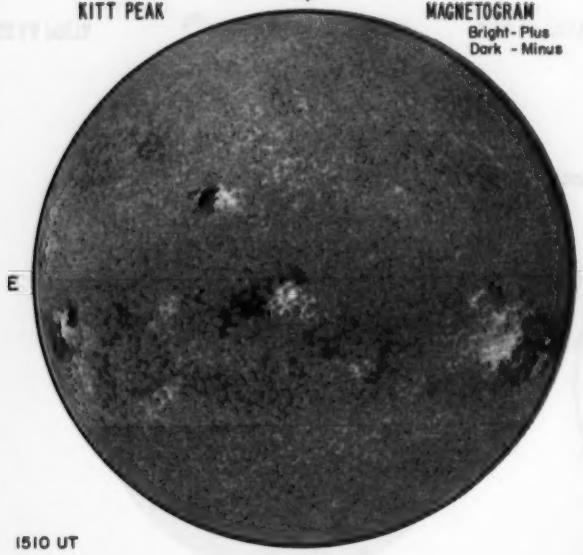
FEBRUARY 22, 1980 (P=-19.40, B_o=-7.06, L_o=340.48)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX=

Levels
± 5
± 10
± 20
± 40
± 80

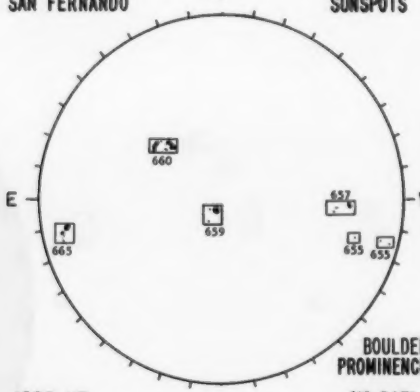
22

SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

SACRAMENTO PEAK Hα

1555 UT

SAN FERNANDO SUNSPOTS

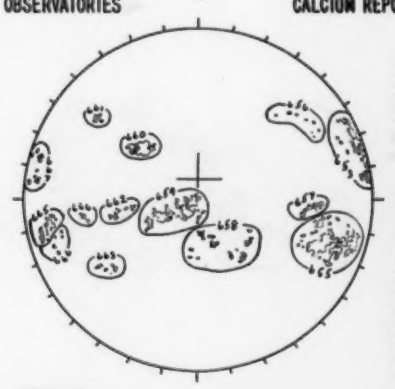


1800 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT

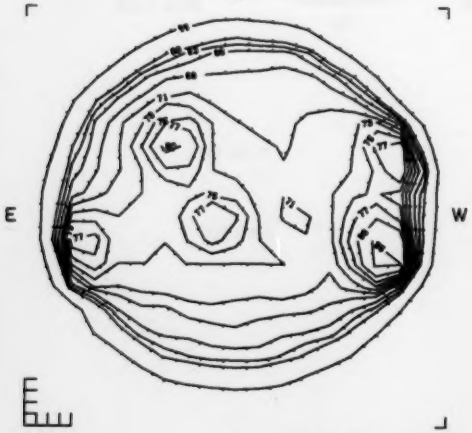


1634 UT

GOOD | JA

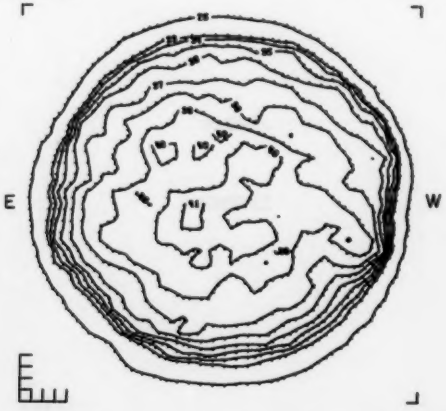
53- 2100-3.0
55- 4900-3.5
57- 0400-2.5
58- 0900-2.5
59- 2000-3.0
60- 1500-3.0
62- 0300-2.5
65- 1100-3.0

NOSC LA POSTA 2.0 CM



1603 UT Ant. Temp. Unit 100° K

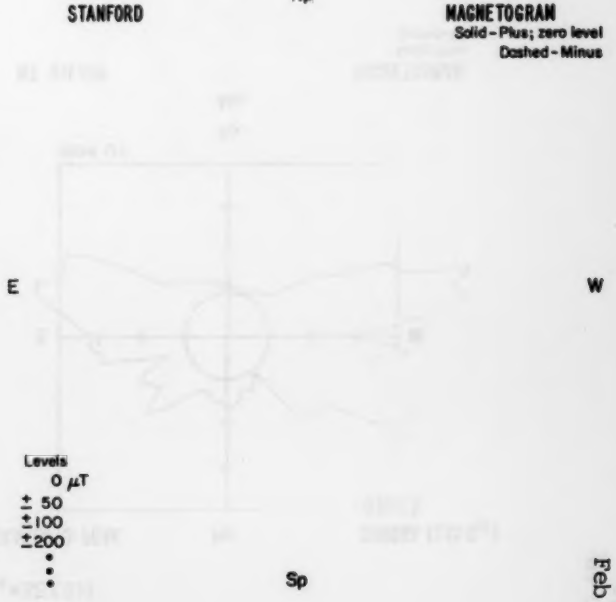
NOSC LA POSTA 8.6 MM



1629 UT Ant. Temp. Unit 100° K

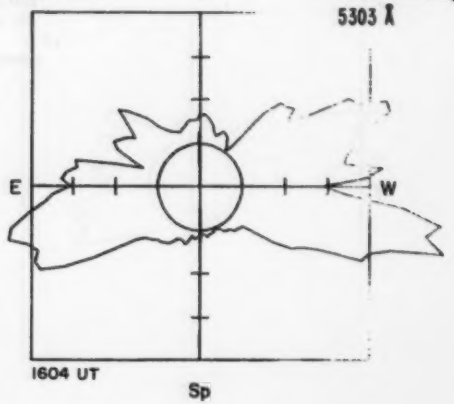
STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



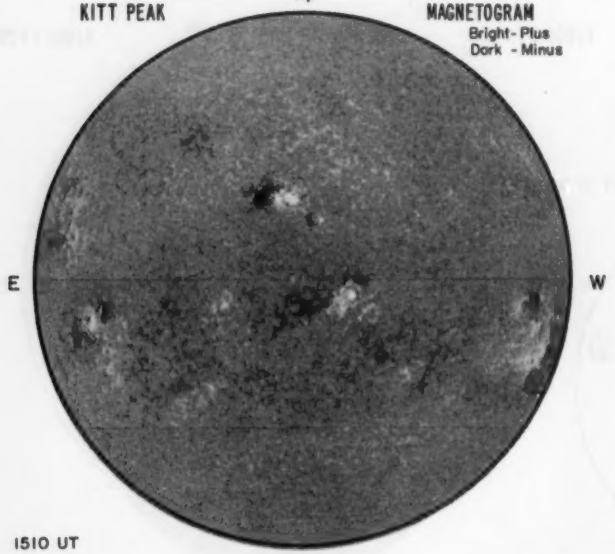
FEBRUARY 23, 1980 (P=-19.70, B_o=-7.09, L_o=327.31)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



NT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =

E W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

23

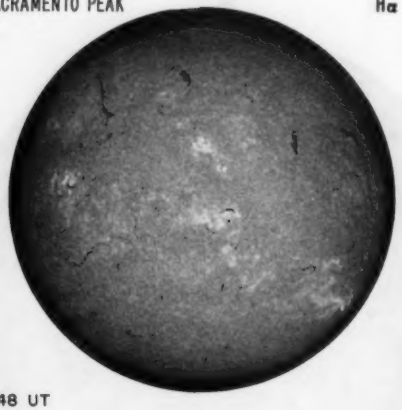
SACRAMENTO PEAK Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

23

SACRAMENTO PEAK Np Hα

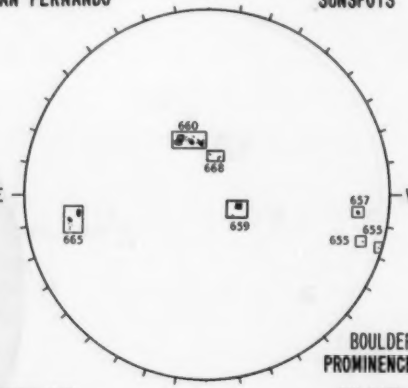


E W

1448 UT

Sp

SAN FERNANDO Np SUNSPOTS



E W

1630 UT

Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT

E W

1824 UT

Sp

FAIR	JA

55- 3100-3.0
57- 0500-3.0
58- 0900-2.5
59- 2300-3.5
60- 1600-3.5
61- 0300-2.5
62- 0300-2.5
64- 0200-2.5
65- 1700-3.0
67- 1100-2.5
68- 0300-2.5
72- 0200-2.5

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E SCHEDULE W

---- UT Sp Ant. Temp. Unit 100° K

Levels
0 μT
± 50
±100
±200

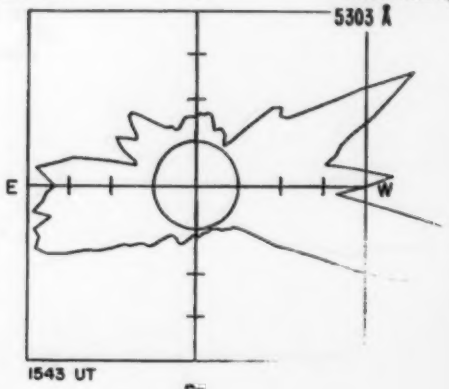
E W

Sp

89
Feb 80

FEBRUARY 24, 1980 (P=-19.99, B_o=-7.12, L_o=314.14)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

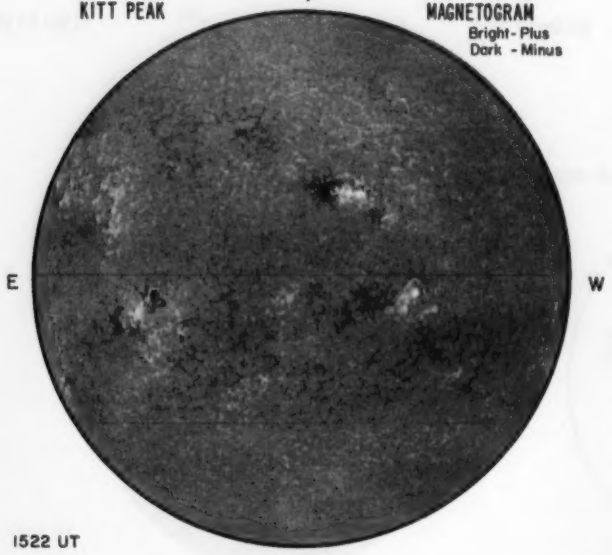


1543 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1522 UT

Sp

MT. WILSON

DELTAY =
DELTAX=

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E W

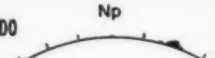
Levels
± 5
± 10
± 20
± 40
± 80

Sp

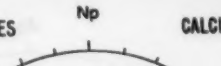
24

BOULDER Np Hα

SAN FERNANDO Np



SUNSPOTS HALE OBSERVATORIES Np



CALCIUM REPORT

Sp

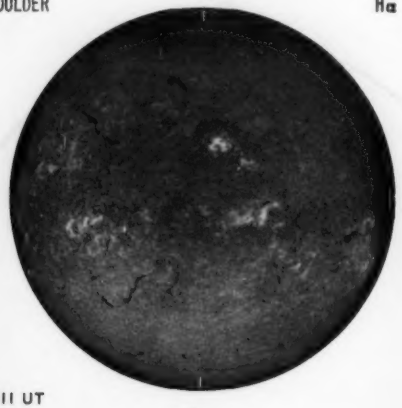
Sp

24

BOULDER

Np

Hα



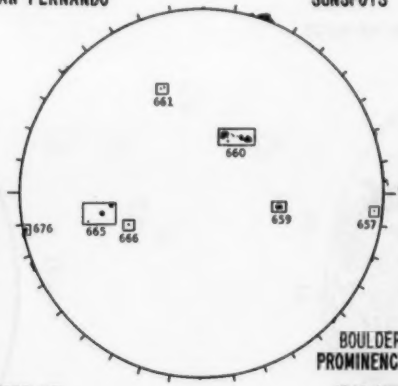
E W

1511 UT

Sp

SAN FERNANDO

Np



E W

2100 UT

Sp

SUNSPOTS

HALE OBSERVATORIES

Np

E W

2146 UT

Sp

CALCIUM REPORT

POOR	JA

55- 1300-3.0
57- 0400-2.5
58- 0700-3.0
59- 2100-3.0
60- 1700-3.5
61- 0200-3.0
62- 0200-2.5
63- 0200-2.5
64- 0200-2.5
65- 1700-3.5
66- 0700-3.0
67- 1400-3.0
68- 0100-2.5
70- 0900-3.0
72- 0200-3.0
73- 0700-3.0
74- 0300-2.5
76- 0800-3.0

BOULDER PROMINENCES

1511 UT

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E SCHEDULE W

---- UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

Sp

91

Feb 80

FEBRUARY 25, 1980 (P = -20.28, B_o = -7.14, L_o = 300.96)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å

E NO DATA W

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.6
DELTAX = 9.7

E W

Levels
5
10
20
40
80

22.75-24.14 UT

Sp

25

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

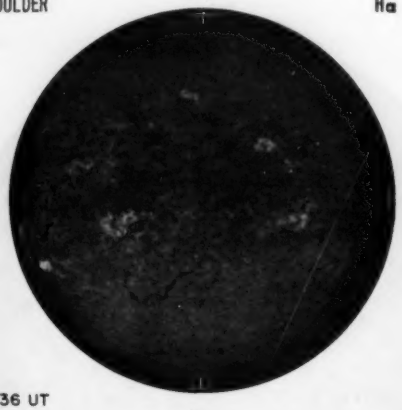
Sp

Sp

25

BOULDER

Np



E W

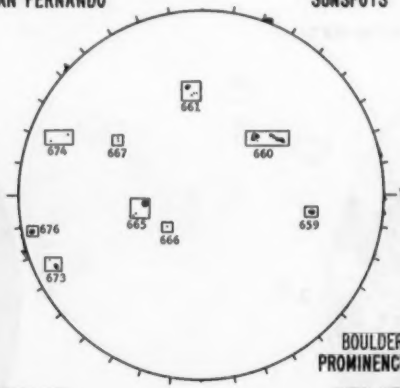
1436 UT

Sp

Hα

SAN FERNANDO

Np



E W

1740 UT

Sp

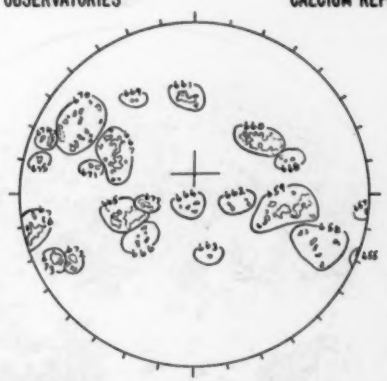
SUNSPOTS

BOULDER PROMINENCES

1436 UT

HALE OBSERVATORIES

Np



E W

1950 UT

Sp

CALCIUM REPORT

	POOR	JA
59-	2300	3.0
60-	2400	3.0
61-	0800	3.0
65-	1600	3.5
67-	1500	3.0
68-	0200	2.5
70-	1700	3.0
71-	0200	2.5
72-	0500	3.5
73-	0900	4.0
74-	0500	2.5
75-	0300	2.5
76-	1500	3.0
77-	0500	3.0

Np

STANFORD

MAGNETOGRAM

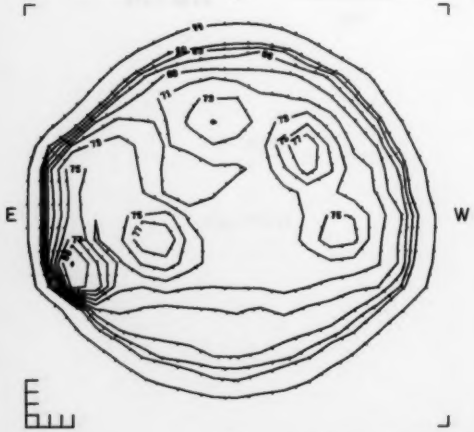
Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM



E W

1631 UT

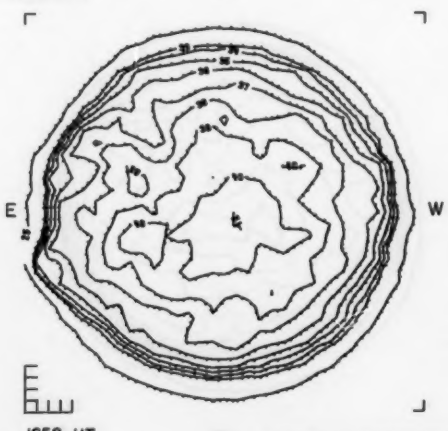
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1658 UT

Sp

Ant. Temp. Unit 100° K

E W

Levels

0 μT

± 50

±100

±200

Sp

93

Feb 80

FEBRUARY 26, 1980 (P_o = -20.56, B_o = -7.16, L_o = 287.79)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)

Å

E W

1904 UT

Sp

KITT PEAK Np MAGNETOGRAM

Bright - Plus
Dark - Minus

E W

1444 UT

Sp

MT. WILSON Np MAGNETOGRAM

Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4

E W

Levels
± 5
± 10
± 20
± 40
± 80

18.29-19.73 UT

Sp

26

BOULDER Np Hα

SAN FERNANDO Np SUNSPOTS

HALE OBSERVATORIES Np CALCIUM REPORT

26

BOULDER

Np

E W

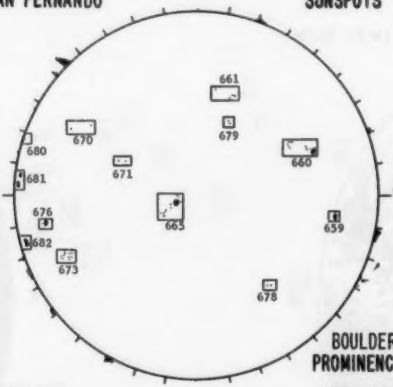
2026 UT

Sp

Hα

SAN FERNANDO

Np



E W

1740 UT

Sp

SUNSPOTS

BOULDER PROMINENCES

2026 UT

HALE OBSERVATORIES

Np

E W

1853 UT

Sp

CALCIUM REPORT

	POOR	JA
59-	2000	3.0
60-	2000	3.5
61-	0900	3.0
65-	1200	3.0
66-	0400	2.5
67-	1400	3.0
70-	1400	3.0
71-	0400	3.0
72-	0300	3.0
73-	0900	3.0
74-	0400	3.0
75-	0300	3.0
76-	1200	3.5
77-	0600	3.0
78-	0200	2.5
79-	0100	3.0
80-	1800	3.0
81-	1000	3.0
82-	0700	2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM

NO DATA

EQUIPMENT

E W

---- UT

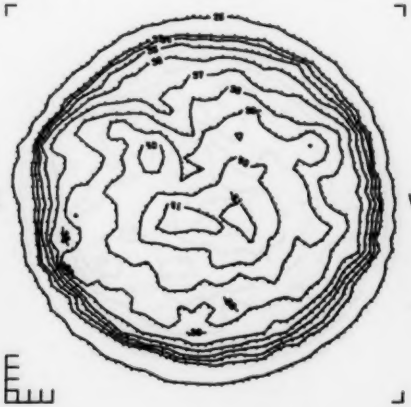
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1629 UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

Sp

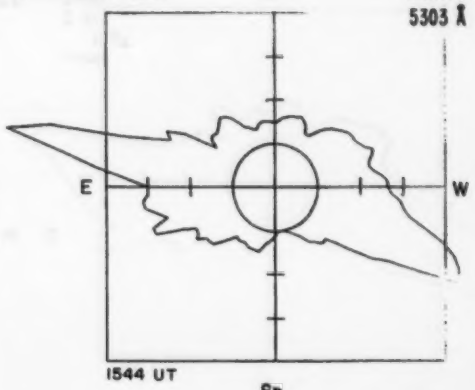
E W

95

Feb 80

FEBRUARY 27, 1980 (P=-20.83, B_o=-7.18, L_o=274.62)

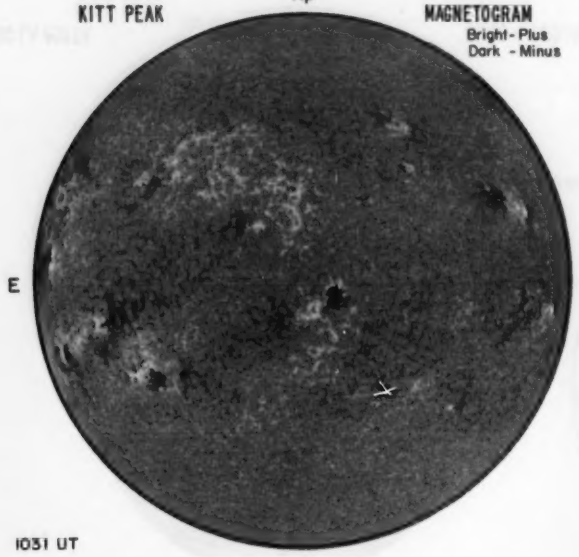
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1544 UT

Sp

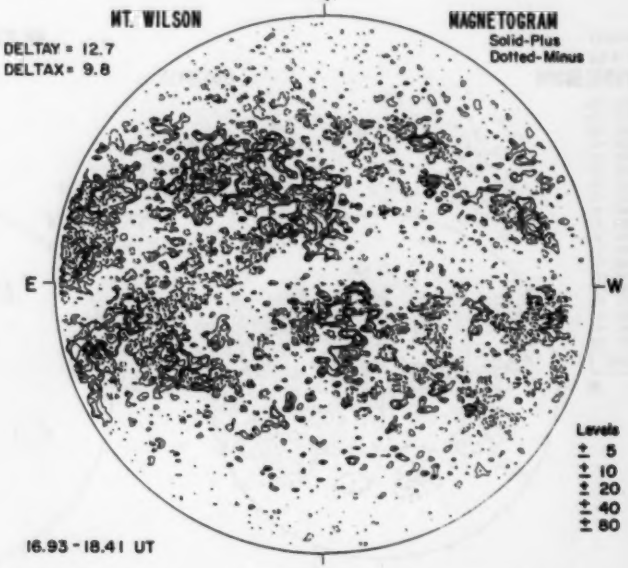
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1031 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.8



16.93 - 18.41 UT

Sp

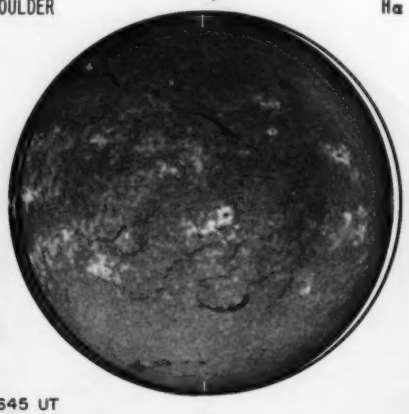
27

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

BOULDER

Np

Hα



E W

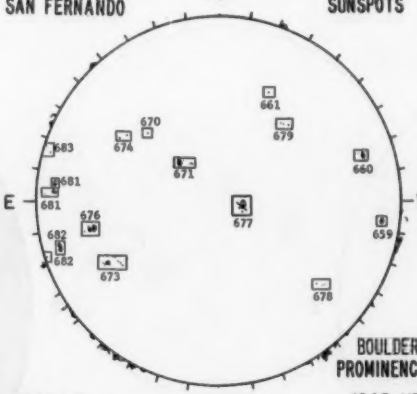
1645 UT

Sp

SAN FERNANDO

Np

SUNSPOTS



E W

1630 UT

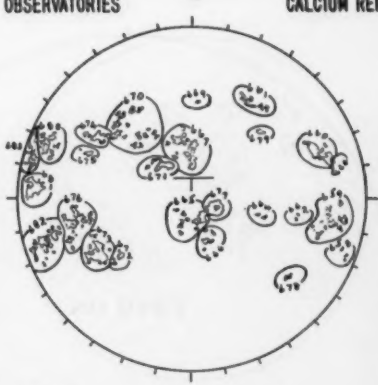
Sp

BOULDER PROMINENCES

1645 UT

HALE OBSERVATORIES

Np



E W

1730 UT

Sp

CALCIUM REPORT

	FAIR	JA
59-	1500	2.5
60-	1800	3.0
61-	0500	2.5
65-	0900	3.0
66-	0400	2.5
67-	1500	3.0
70-	1500	3.0
71-	0500	3.0
72-	0300	3.0
73-	1500	3.0
74-	0700	3.0
75-	0200	3.0
76-	1500	3.5
77-	0800	3.0
78-	0200	2.5
79-	0200	3.0
80-	1900	3.5
81-	2300	3.5
82-	1600	3.0
83-	2200	3.5

STANFORD

Np

MAGNETOGRAM

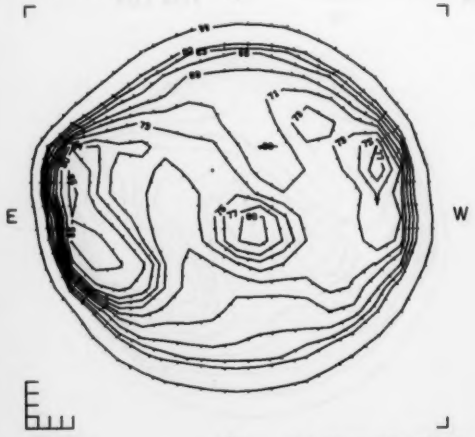
Solid - Plus; zero level

Dashed - Minus

NOSC LA POSTA

Np

2.0 CM



E W

1602 UT

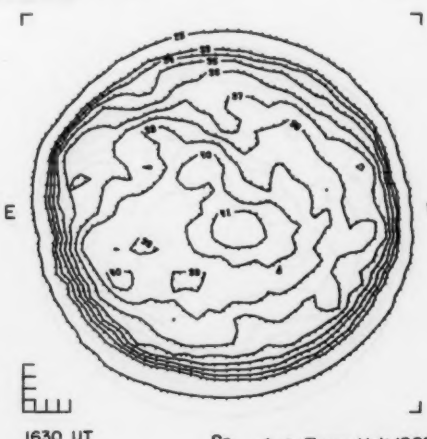
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E W

1630 UT

Sp

Ant. Temp. Unit 100° K

Levels

0 μT

± 50

±100

±200

Sp

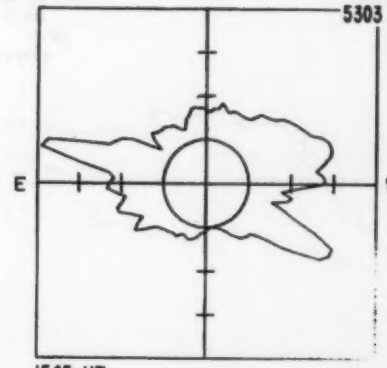
W

97

Feb 80

FEBRUARY 28, 1980 ($P_{\odot}$=-21.10, $B_{\odot}$=-7.20, $L_{\odot}$=261.45)

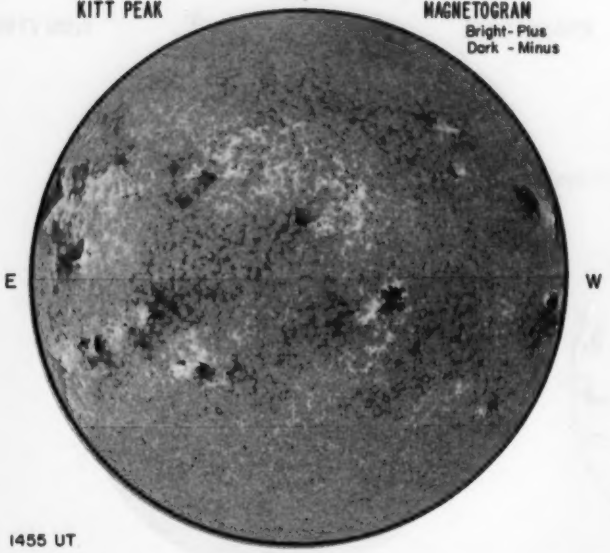
SACRAMENTO PEAK Np CORONA (1.15 $R_{\odot}$)
5303 Å



1545 UT

Sp

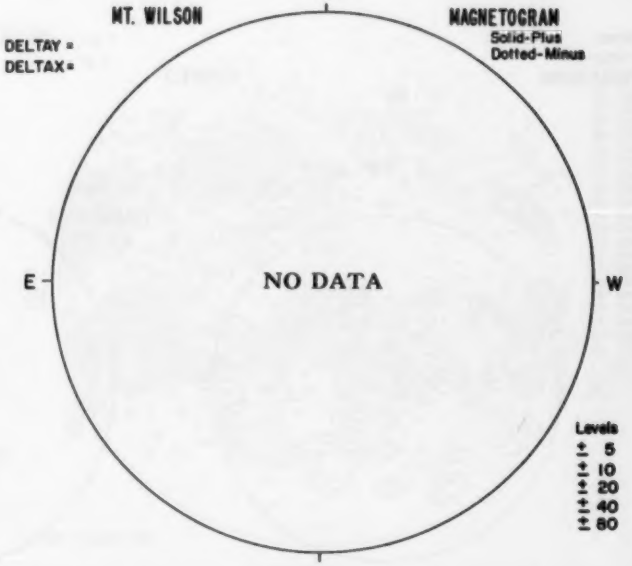
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1455 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



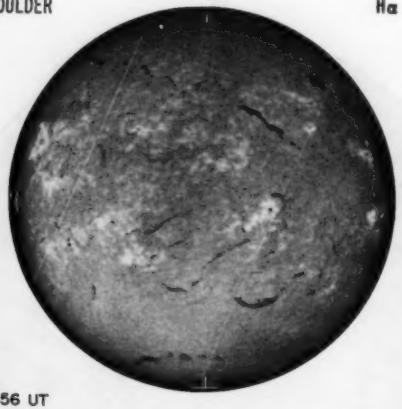
Sp

28

BOULDER Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

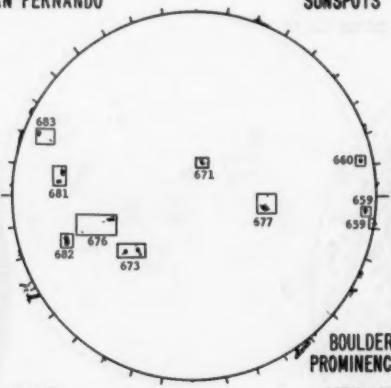
28

BOULDER Np Hα



1656 UT

SAN FERNANDO Np SUNSPOTS

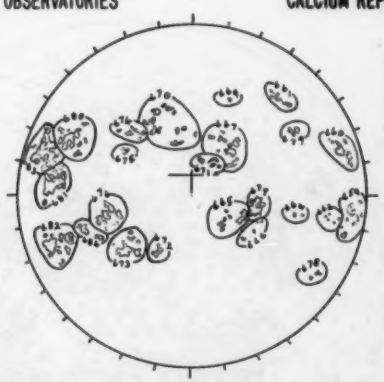


1815 UT

BOULDER PROMINENCES

1656 UT

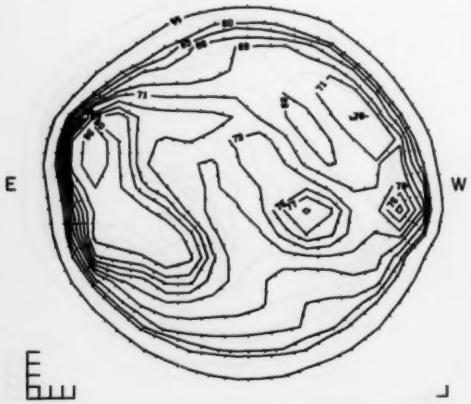
HALE OBSERVATORIES Np CALCIUM REPORT



1853 UT

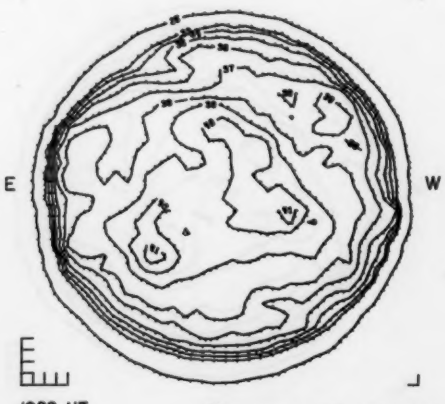
POOR	JA
60- 1000	3.0
61- 0400	3.0
65- 0600	3.0
66- 0200	2.5
67- 1100	3.0
69- 0100	2.5
70- 1200	3.0
71- 0300	3.0
72- 0300	3.0
73- 1100	3.0
74- 0400	3.0
75- 0200	2.5
76- 1100	3.0
77- 0800	3.0
79- 0400	3.5
80- 1800	3.5
81- 2300	3.5
82- 2200	3.5
83- 2200	4.0
84- 0500	3.0

NOSC LA POSTA Np 2.0 CM



1855 UT Ant. Temp. Unit 100° K

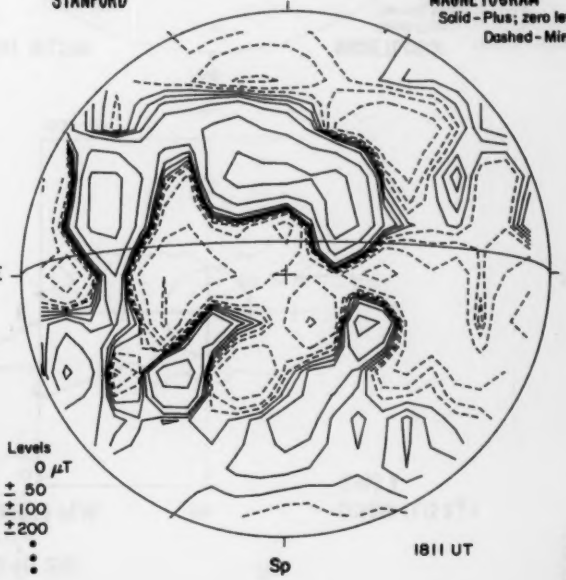
NOSC LA POSTA Np 8.6 MM



1922 UT Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



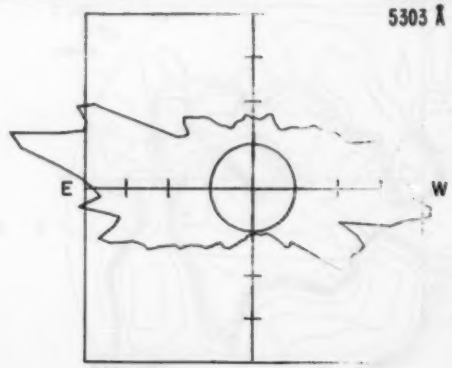
Levels
0 μT
± 50
± 100
± 200

1811 UT

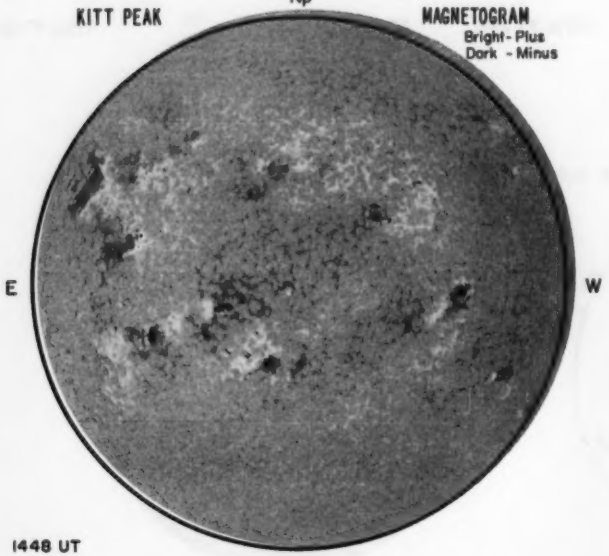
99
Feb 80

FEBRUARY 29, 1980 (P=-21.36, B_o=-7.21, L_o=248.28)

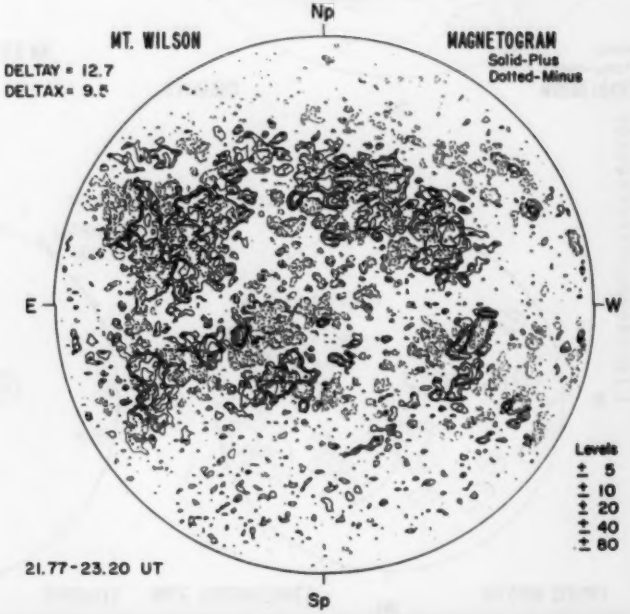
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.5



29

Np Hα SAN FERNANDO Np SUNSPOTS HALE OBSERVATORIES Np CALCIUM REPORT

Sp

Sp

29

Np

Hα

E

NO DATA

W

Sp

Np

SAN FERNANDO

SUNSPOTS

E

W

1700 UT

Sp

BOULDER PROMINENCES

NO DATA

Np

HALE OBSERVATORIES

CALCIUM REPORT

E

W

1754 UT

Sp

6000	JA
59-	1000-3.0
60-	0500-3.0
61-	0300-3.0
65-	0600-3.0
66-	0200-2.5
67-	1100-3.0
70-	1200-3.0
71-	0400-3.0
72-	0300-2.5
73-	1700+4.0
74-	0300+3.0
75-	0200-2.5
76-	1900-3.5
77-	1000-3.5
79-	0400-3.0
80-	2300-3.0
81-	2500-3.5
82-	2800-3.5
83-	4800-4.0
84-	1000-3.5
85-	0300-3.0
86-	0600-4.0
87-	0300-3.0

NOSC LA POSTA

Np

2.0 CM

E

W

1615 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E

W

1646 UT

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

Sp

101

Feb 80

REGIONS OF SOLAR ACTIVITY

FEBRUARY 1980

HALE REGION 16626 — CMP DATE 1.2 — RETURN OF PART OF REGION 16571 — ROTATION 2

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	26	16626					21223	N16 E71	254	(AP)	4	N	170	1	HSX
80	1	31	16626					21223	N16 E06	255	(BP)	4	R	120	1	HSX
80	2	1	16626	N17 W06	252	1000	3.5	21223	N16 W08	255	(AP)	4	R	120	5	CSO
80	2	2	16626	N17 W21	251	1000	3.0	21223	N16 W22	25E	(AP)	4	R	210	2	CSO
80	2	3	16626	N18 W35	252	1000	2.5	21223	N15 W33	254	(AP)	4	R	130	1	HSX
80	2	4	16626	N18 W48	252	900	2.5	21223	N16 W48	254	AP	4				
80	2	5	16626					21223	N15 W60	254	AP	3	H	120	2	CSO
80	2	6	16626	N18 W70	249	200	1.5	21223	N15 W76	25E	(AP)	3				

HALE REGION 16625 — CMP DATE 1.5

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	26	16625					21224	N05 E74	251	(B)	4				
80	1	31	16625					21224	N05 E09	252	(BP)	4	R	280	14	DKI
80	2	1	16625	N04 W04	250	1900	3.5	21224	N05 W07	254	(BP)	4	R	160	11	DAI
80	2	2	16625	N06 W20	250	2400	3.5	21224	N05 W20	254	(BP)	4	R	180	14	DAI
80	2	3	16625	N05 W35	252	1800	3.0	21224	N05 W33	254	(AP)	3	R	40	8	CSO
80	2	4	16625	N06 W48	252	2300	3.0	21224	N05 W48	254	AP	3				
80	2	5	16625					21224	N04 W60	254	AP	1				
80	2	6	16625	N04 W72	251	700	2.5									

HALE REGION 16629 — CMP DATE 2.3 — RETURN OF PART OF REGION 16569 — ROTATION 5

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16629	S16 E06	240	300	2.5									
80	2	2	16629	S16 W09	239	200	2.5									
80	2	3	16629	S17 W21	238	200	2.0									
80	2	4	16629	S17 W34	238	200	2.0									
80	2	6	16629	S18 W59	238	200	1.5									

HALE REGION 16642 — CMP DATE 2.4

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	4	16642	S25 W34	238	500	3.0	21241	S25 W30	23E	AP	4				
80	2	5	16642					21241	S24 W43	237	B	2	H	30	4	CSO
80	2	6	16642	S26 W56	235	600	3.0	21241	S25 W57	237	B	2				
80	2	7	16642						S23 W67				R	10	1	AXX
80	2	8	16642	S23 W80	230	200	2.0									

HALE REGION 16628 — CMP DATE 2.8 — RETURN OF PART OF REGION 16567 — ROTATION 7

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16628	S04 E16	230	900	2.5									
80	2	2	16628	S04 W01	231	700	2.0									
80	2	3	16628	S03 W15	232	200	1.5	21238	S02 W05	22E	AP	1				
80	2	4	16628	S03 W23	227	600	1.5									
80	2	6	16628	S03 W47	22E	600	1.5									

HALE REGION 16627 — CMP DATE 3.0 — RETURN OF PART OF REGIONS 16566 & 16572 — ROTATIONS 6 & 3

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	31	16627					21227	N15 E27	234	(BY)	5	R	510	30	EKI
80	1	31	16627					21226	N13 E41	220	(AF)	3	R	20	5	BXO
80	2	1	16627	N14 E15	231	5200	3.5	21227	N14 E13	234	(BY)	5	R	460	32	EKI
80	2	2	16627	N15 E01	225	4900	3.5	21227	N14 E03	231	(BY)	5	R	470	36	FKI
80	2	3	16627	N15 W12	229	4500	3.5	21227	N14 W11	232	(D)	4				
80	2		16627					21237	N08 W20	241	(X)	1				
80	2	4	16627	N15 W27	231	5000	3.5	21227	N15 W32	238	BP	4	H	30	2	HSX
80	2	5	16627					21227	N15 W40	234	BP	4	H	350	11	DKO
80	2	6	16627	N14 W53	232	3100	3.0	21227	N15 W56	236	(D)	4				
80	2		16627					21246	N12 W42		(AF)	2				
80	2	7	16627					21227	N14 W68	23E	(AP)	4	R	440	8	CKO

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HALE REGION 16627 (CONT)

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	8	16627	N15 W75	225	300	2.5		N14 W80				R	250	3	HKX

HALE REGION 16630 CMP DATE 3.3 RETURN OF REGION 16569 ROTATION 5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16630	S23 E17	229	700	3.0									
80	2	2	16630	S24 E04	226	800	3.0									
80	2	3	16630	S23 W08	225	300	2.0	21239	S24 W03	224	(AP)	2				
80	2	4	16630	S24 W18	222	400	2.5									
80	2	6	16630	S24 W43	222	500	2.0									
80	2	8	16630	S22 W70	220	200	2.0									

HALE REGION 16632 CMP DATE 4.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16632	N13 E32	214	200	2.5	21228	N13 E26	221	(AF)	3	R	30	4	CRO
80	2	2	16632	N14 E16	214	300	2.5		N13 E15				R	10	6	BXO

HALE REGION 16633 CMP DATE 4.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16633	N19 E35	211	700	3.0	21232	N19 E36	211	(B)	3				
80	2	2	16633	N19 E18	212	1100	3.0	21232	N19 E23	211	(B)	4				
80	2	3	16633	N21 E06	211	600	3.5	21232	N19 E10	211	(B)	3				
80	2	4	16633	N21 W07	211	900	3.0	21232	N19 W05	211	B	4				
80	2	5	16633					21232	N19 W20	214	B	3	H	70	3	DSO
80	2	6	16633	N21 W33	212	500	2.5	21232	N19 W32	212	(B)	3				
80	2	7	16633					21232	N15 W46	214	(AP)	2				
80	2	8	16633	N23 W57	207	300	2.5	21232	N16 W60	215	AP	2	R	10	1	AXX
80	2	9	16633	N21 W69	209	300	2.5									

HALE REGION 16637 CMP DATE 4.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16637	N26 E38	208	400	3.0									
80	2	2	16637	N31 E25	205	600	2.5									
80	2	3	16637	N30 E09	208	300	2.5									
80	2	4	16637	N30 W03	207	700	3.0									
80	2	6	16637	N30 W25	204	500	2.5									
80	2	8	16637	N29 W56	206	300	2.5									
80	2	9	16637	N28 W68	208	100	2.0									

HALE REGION 16631 CMP DATE 5.0 RETURN OF REGION 16576 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	31	16631					21229	S15 E56	205	(D)	5	R	560	24	DKI
80	2	1	16631	S17 E41	205	4200	4.0	21229	S15 E42	205	(B)	5	R	990	30	EKI
80	2	2	16631	S16 E26	204	4400	4.0	21229	S15 E28	206	(D)	5	R	1110	89	EKC
80	2	3	16631	S16 E14	203	4800	3.5	21229	S15 E16	205	(BY)	5	R	1240	84	FKC
80	2	4	16631	S16 E00	204	5900	3.5	21229	S15 E04	202	BY)	5				
80	2	5	16631					21229	S15 W18	204	(BY)	5				
80	2	6	16631	S16 W23	202	6400	3.5	21229	S15 W25	205	(D)	5				
80	2	7	16631					21229	S17 W35	203	(BP)	4	R	780	9	FKI
80	2	8	16631	S16 W46	198	4300	3.5	21229	S15 W47	202	(BP)	4	R	750	42	FKI
80	2	9	16631	S16 W60	200	3800	3.5	21229	S17 W59	201	(BP)	4	P	710	29	FKI
80	2	10	16631	S16 W73	200	1300	3.0	21229	S17 W70	199	(B)	3	H	810	13	FKI
80	2	11	16631	S17 W81	196	1000	3.0	21229	S18 W82	198	(B)	1	P	80	2	DAO

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HALE REGION 16634 CMP DATE 5.3 RETURN OF PART OF REGION 16581 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	31	16634					21230	N19 E57	204	(AP)	4				
80	2	1	16634	N15 E44	202	1600	2.5	21230	N18 E43	204	(AP)	4	R	78	6	DRO
80	2		16634					21233	N17 E53	194	(B)	3	R	20	1	AXX
80	2	2	16634	N16 E35	195	2500	3.0	21230	N18 E30	204	(AP)	4	R	80	1	HSX
80	2		16634					21233	N17 E40	194	(D)	3				
80	2	3	16634	N18 E18	199	2100	3.0	21230	N18 E18	203	(AP)	3	R	368	18	DKO
80	2		16634					21233	N18 E28	193	(D)	4				
80	2	4	16634	N18 E05	199	3800	3.0	21230	N19 E03	203	AP	2				
80	2		16634					21233	N17 E17	195	BP	4				
80	2	5	16634					21233	N18 W03	197	B	3	H	30	6	CSO
80	2	6	16634	N18 W24	203	2400	3.0	21233	N18 W15	195	(B)	3				
80	2		16634					21245	N25 W27		AP	1				
80	2	7	16634					21233	N16 W29	197	(AP)	2				
80	2	8	16634	N18 W48	198	2000	2.5	21233	N16 W48	203	AP	2	R	10	1	AXX
80	2	9	16634	N18 W58	198	1700	3.0	21233	N15 W58	200	(AP)	2	P	10	1	AXX
80	2	10	16634	N18 W72	199	500	2.0	21233	N15 W71	200	(AP)	1	H	10	1	AXX

HALE REGION 16640 CMP DATE 6.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	3	16640	N03 E27	190	200	2.5	21240	N04 E30	191	(B)	2	R	10	2	BXO
80	2	4	16640	N03 E13	191	200	3.5	21240	N03 E14	192	B	3				
80	2	5	16640					21240	N04 W01	195	B	2	H	30	3	CSO
80	2	6	16640	N03 W15	194	1300	3.5	21240	N03 W14	194	(B)	4				
80	2	7	16640					21240	N03 W24	192	(B)	4	R	190	16	DAI
80	2	8	16640	N04 W43	193	1500	3.5	21240	N04 W36	193	(B)	4	R	420	23	DAO
80	2	9	16640	N03 W55	195	1900	3.5	21240	N03 W53	195	(B)	4	P	360	11	ESO
80	2	10	16640	N04 W68	195	1300	3.0	21240	N03 W66	195	(B)	3	H	330	8	ESO
80	2	11	16640	N04 W78	193	1000	3.0	21240	N03 W80	196	(B)	2	P	100	2	DSO

HALE REGION 16638 CMP DATE 6.2 RETURN OF REGION 16577 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16638	S15 E66	180	1200	3.0	21231	S12 E62	185	(AP)	3	K	10	1	AXX
80	2	2	16638	S14 E53	177	2100	3.0	21231	S12 E50	184	(B)	3	R	10	3	BXO
80	2	3	16638	S13 E37	180	1300	3.0	21231	S12 E39	182	(BF)	3	R	10	2	BXO
80	2	4	16638	S15 E24	180	1900	3.0	21231	S13 E27	179	B	3				
80	2	5	16638					21231	S13 E10	184	AP	2				
80	2	6	16638	S15 W01	180	1800	3.0		S12 E08				H	10	2	BXO
80	2	8	16638	S14 W28	178	1400	2.5									
80	2	9	16638	S15 W38	178	1300	3.0									
80	2	10	16638	S15 W50	177	1000	2.5									
80	2	11	16638	S17 W62	177	600	2.5									
80	2	12	16638	S17 W75	173	300	2.0									

HALE REGION 16635 CMP DATE 7.0 RETURN OF PART OF REGION 16581 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16635	N15 E59	187	700	3.0									
80	2	2	16635	N18 E51	179	300	3.0		N18 E43				R	90	16	CRO
80	2	3	16635	N19 E40	177	600	3.0		N18 E30				R	60	12	CAO
80	2	4	16635	N18 E22	182	400	3.0									
80	2	6	16635	N19 E01	178	500	3.0									
80	2	8	16635	N22 W25	175	300	2.5									
80	2	9	16635	N20 W36	176	500	2.5									
80	2	10	16635	N20 W48	175	400	2.0									
80	2	11	16635	N20 W56	171	200	2.0									

HALE REGION 16636 CMP DATE 7.6 RETURN OF REGION 16585 ROTATION 6

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	1	16636	N25 E78	168	600	2.0									
80	2	2	16636	N26 E58	172	600	2.0									
80	2	3	16636	N26 E43	174	1000	3.0									
80	2	4	16636	N27 E32	172	1200	3.0									
80	2	6	16636	N28 E09	178	1300	3.0									

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HALE REGION 16636 (CONT) CMP DATE 7.6 RETURN OF REGION 16585 ROTATION 6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	8	16636	N29 W18	168	700	3.0								
80	2	9	16636	N27 W27	167	1800	3.0								
80	2	10	16636	N27 W38	165	900	2.5								
80	2	11	16636	N27 W48	163	500	3.0								
80	2	12	16636	N28 W66	164	400	1.5								

HALE REGION 16639 CMP DATE 9.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	2	16639	N24 E79	151	200	2.5	21235	N26 E80	154	(X)	2			
80	2	3	16639	N25 E68	149	900	3.5	21235	N26 E70	151	(B)	3	R	250	5 DAO
80	2	4	16639	N25 E54	150	1300	3.5	21235	N27 E56	150	B	4			
80	2	5	16639					21235	N27 E43	151	B	4	H	190	5 DSO
80	2	6	16639	N25 E28	151	1300	3.0	21235	N27 E28	152	(BP)	4			
80	2	7	16639					21235	N27 E15	153	(AP)	4			
80	2	8	16639	N26 E02	148	1500	3.5	21235	N28 E03	152	(AP)	3	R	60	1 HSX
80	2	9	16639	N27 W10	150	1400	3.5	21235	N27 W11	153	(BP)	4	P	80	5 DSO
80	2	10	16639	N26 W24	151	1100	3.5	21235	N27 W23	152	(BP)	4	H	130	7 DSO
80	2	11	16639	N26 W36	151	1000	3.0	21235	N27 W36	152	(BP)	3	P	50	5 DRI
80	2	12	16639	N26 W52	150	700	3.0	21235	N27 W48	150	(AP)	3	H	80	4 CAO

HALE REGION 16641 CMP DATE 9.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	3	16641	N09 E79	138	800	2.5								
80	2	4	16641	N08 E63	141	1300	3.0								
80	2	6	16641	N10 E36	143	1300	3.0	21243	N08 E39	141	(BP)	3			
80	2	7	16641					21243	N09 E27	141	(BY)	3			
80	2	8	16641	N10 E08	142	1800	3.5	21243	N09 E11	144	(AP)	3	R	50	12 CAO
80	2	9	16641	N11 W04	144	2500	3.5	21243	N10 W02	144	(BP)	4	P	40	8 CSO
80	2	10	16641	N11 W17	144	2500	3.5	21243	N11 W16	145	(BP)	4			
80	2	11	16641	N10 W30	145	2200	3.5	21243	N10 W30	146	(BY)	4	P	80	13 DSI
80	2	12	16641	N11 W46	144	2400	3.5	21243	N10 W45	147	(BP)	4	H	260	22 DAI
80	2	13	16641						N10 W57				R	180	14 DAI
80	2	14	16641						N07 W78				P	180	6 DHO
80	2	15	16641						N10 W80				R	10	2 BXO

HALE REGION 16643 CMP DATE 9.9 RETURN OF PART OF REGION 16587 ROTATION 6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	4	16643	N18 E63	141	200	2.0								
80	2	6	16643	N18 E43	139	200	2.0								
80	2	8	16643	N19 E14	138	300	2.5								
80	2	9	16643	N19 E02	138	200	2.5								
80	2	10	16643	N18 W08	139	300	2.0								
80	2	11	16643	N18 W23	138	200	2.5								
80	2	12	16643	N18 W40	139	200	2.5								

HALE REGION 16650 CMP DATE 10.0 RETURN OF LEADING PART OF REGION 16591 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	9	16650	S06 E03	137	400	3.0								
80	2	10	16650	S06 W11	138	400	2.0								
80	2	11	16650	S06 W25	140	400	1.5								
80	2	12	16650	S07 W37	135	600	3.0								
80	2	14	16650						S12 W63				P	440	13 CKO
80	2	15	16650						S10 W69				R	600	6 CKO

HALE REGION 16645 CMP DATE 10.7 RETURN OF REGIONS 16589 AND 16590 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	6	16645	N10 E51	128	500	2.5								
80	2	8	16645	N10 E23	127	700	2.5								

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HALE REGION 16645 (CONT)

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	9	16645	N11 E12	128	500	3.5										
80	2	10	16645	N08 W04	131	200	3.0			N08 W09				M	40	8	CSO
80	2	11	16645	N09 W15	130	500	2.5										
80	2	12	16645	N10 W28	126	400	1.5										

HALE REGION 16644 CMP DATE 11.2 RETURN OF REGIONS 16592 & 16593 AND PART OF REGION 16591 ROTATIONS 3,

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	4	16644	S16 E82	122	1200	3.0		21242	S12 E80	12[illegible]	AP	3				
80	2	5	16644						21242	S11 E70	124	BY	3				
80	2	6	16644	S15 E56	123	6000	4.0		21242	S13 E53	127	(D)	4				
80	2		16644						21244	S17 E75	105	(AP)	3				
80	2	7	16644						21242	S13 E47	121	(BY)	4	R	500	31	FKI
80	2		16644						21244	S17 E64	104	(AP)	2				
80	2	8	16644	S17 E28	122	7000	3.5		21242	S13 E26	12[illegible]	(BP)	4	R	490	48	FKI
80	2		16644						21244	S18 E49	106	AP	2				
80	2	9	16644	S16 E18	122	6300	4.0		21242	S12 E15	127	(BY)	5	P	540	34	FKI
80	2		16644						21244	S17 E34	108	(AP)	2				
80	2	10	16644	S16 E05	122	5200	4.0		21242	S12 E01	128	(D)	5				
80	2	11	16644	S16 W09	124	5100	3.5		21242	S12 W15	131	(BY)	5	P	540	24	EHI
80	2	12	16644	S16 W23	121	4500	3.5		21242	S12 W30	132	(BP)	5	H	600	14	EKI
80	2	13	16644							S11 W42				R	650	9	CKO
80	2	16	16644							S12 W77				P	280	4	CKO

HALE REGION 16647 CMP DATE 12.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	8	16647	S13 E40	110	500	3.5		21247	S13 E45	110	(BP)	3				
80	2	9	16647	S13 E31	109	700	3.5		21247	S12 E33	109	(B)	4	P	110	18	DAO
80	2	10	16647	S13 E15	112	800	3.5		21247	S12 E19	110	(B)	3	H	280	18	EKO
80	2	11	16647	S13 E05	110	800	3.0		21247	S12 E05	111	(B)	3	P	20	4	DSO
80	2	12	16647	S12 W11	109	500	3.0		21247	S14 W07	109	(B)	3	H	50	8	CRO
80	2	13	16647							S14 W24				R	10	1	AXX

HALE REGION 16646 CMP DATE 12.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	6	16646	N24 E88	99	300	2.0										
80	2	8	16646	N24 E49	101	300	3.0										
80	2	9	16646	N27 E39	101	400	3.0										
80	2	10	16646	N25 E26	101	200	3.0										
80	2	11	16646	N25 E15	100	400	3.0										
80	2	12	16646	N25 W02	100	400	2.5										

HALE REGION 16648 CMP DATE 12.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	8	16648	S21 E51	99	1000	3.0										
80	2	9	16648	S18 E41	99	1000	3.0										
80	2	10	16648	S20 E25	102	1100	3.5			S18 E30				M	0	1	AXX
80	2	11	16648	S20 E14	101	1000	3.0										
80	2	12	16648	S20 W01	99	1000	3.0										

HALE REGION 16649 CMP DATE 13.8 RETURN OF REGION 16600 ROTATIONS 5 AND 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	8	16649	S18 E70	88	500	3.0										
80	2	9	16649	S18 E54	86	600	3.0										
80	2	10	16649	S19 E41	86	500	3.5										
80	2	11	16649	S19 E28	87	800	3.0										
80	2	12	16649	S19 E11	87	700	3.0										

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HALE REGION 16652 — CMP DATE 14.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	10	16652	N12 E49	78	100	2.5	21248	N14 E54	75	(AF)	2				
80	2	11	16652	N12 E38	77	100	2.0									
80	2	12	16652	N12 E22	76	100	1.5									
80	2	16	16652						N15 W33				P	140	11	DAO
80	2	17	16652						N17 W48				H	160	11	CAO
80	2	18	16652						N12 W62				P	80	6	CSO
80	2	19	16652						N15 W77				R	70	1	HSX

HALE REGION 16651 — CMP DATE 15.8 — RETURN OF REGION 16601 — ROTATIONS 5 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	9	16651	S16 E75	65	800	2.5									
80	2	10	16651	S17 E64	63	1300	2.5									
80	2	11	16651	S17 E54	61	1600	3.0									
80	2	12	16651	S17 E38	60	1600	3.0									
80	2	14	16651						S22 E01				P	60	11	DAO
80	2	15	16651						S22 W06				R	90	9	DAO
80	2	16	16651						S23 W14				P	60	9	DSO
80	2	17	16651						S22 W26				H	60	4	DSO

HALE REGION 16654 — CMP DATE 16.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	11	16654	S31 E58	57	200	2.0									
80	2	12	16654	S30 E44	54	300	2.5									

HALE REGION 16653 — CMP DATE 17.2 — RETURN OF REGION 16602 — ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	10	16653	N09 E80	47	1900	4.5	21249	N08 E78	51	(AP)	3	H	80	1	HSX
80	2	11	16653	N10 E67	48	4600	4.(	21249	N09 E67	49	(BP)	4	P	430	14	EKI
80	2		16653						N27 E72				P	10	1	AXX
80	2	12	16653	N12 E52	46	8000	4.0	21249	N09 E55	47	(BP)	5	H	960	14	EKI
80	2		16653					21251	N25 E61	41	(B)	3	H	8	1	AXX
80	2	13	16653						N25 E52				R	30	4	BXO
80	2		16653						N09 E42				R	910	12	DKI
80	2	14	16653						N26 E31				P	80	12	DAO
80	2		16653						N11 E22				P	830	52	EKI
80	2	15	16653						N23 E26				R	90	10	CSO
80	2		16653						N09 E18				R	630	33	EKI
80	2	16	16653						N24 E16				P	30	9	DRO
80	2		16653						N09 E09				P	740	36	EHI
80	2		16653						N24 E06				P	70	12	CSO
80	2	17	16653						N23 W05				H	20	5	BXO
80	2		16653						N11 W16				H	500	20	EHI
80	2	18	16653						N22 W20				P	10	4	BXO
80	2		16653						N07 W28				P	360	22	EHI
80	2	19	16653						N24 W29				R	40	13	BXI
80	2		16653						N08 W40				R	460	12	DKO
80	2	20	16653						N08 W54				R	450	11	DKO
80	2	21	16653						N08 W67				R	350	10	DKO
80	2	22	16653	N15 W72	42	2100	3.0	21249	N09 W82	53	AP	2	R	60	3	DAO
80	2	23	16653	N16 W76	32	400	1.0									

HALE REGION 16655 — CMP DATE 18.6 — RETURN OF REGIONS 16604 AND 16603 ROTATIONS 3 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	11	16655	S16 E79	36	1100	3.0	21250	S18 E80	36	(B)	4	P	50	3	DSO
80	2	12	16655	S19 E68	30	4300	3.5	21250	S18 E69	33	(BP)	3	H	150	8	ESO
80	2	13	16655						S18 E61				R	140	15	FSO
80	2	14	16655						S26 E66				P	10	1	AXX
80	2		16655						S17 E49				P	140	19	DAO
80	2	15	16655						S19 E42				R	120	18	DAO
80	2	16	16655						S18 E29				P	200	35	FAI
80	2		16655						S19 E20				P	370	37	FKI
80	2	17	16655						S19 E06				H	200	22	FAI

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HALE REGION 16655 (CONT)

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	18	16655						S19 W85				P	60	24	FSO
80	2	19	16655						S09 E02				R	20	8	BXO
80	2		16655						S18 W16				R	50	28	FRI
80	2	20	16655						S09 W13				R	70	10	DAO
80	2		16655						S18 W27				R	70	14	DAO
80	2		16655						S17 W38				R	60	7	DAO
80	2	21	16655						S18 W37				R	50	9	CRO
80	2		16655						S18 W48				R	30	3	CRO
80	2		16655						S09 W26				R	80	5	DAO
80	2	22	16655	S19 W54	24	4900	3.5	21250	S17 W61	32	(B)	3	R	60	4	DRO
80	2		16655						S17 W50				R	10	2	BXO
80	2	23	16655	S19 W68	24	3100	3.0	21250	S18 W59	17	(B)	3	R	20	1	HRX
80	2		16655						S17 W61				R	8	1	AXX
80	2	24	16655	S21 W73	15	1300	3.0									
80	2	25	16655	S21 W85	15	100	2.0									

HALE REGION 16657 CMP DATE 19.5

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16657	S08 W42	12	400	2.5	21252	S08 W41	12	(B)	4	R	80	2	DRO
80	2	23	16657	S08 W54	10	500	3.0	21252	S06 W57	15	(AP)	3	R	30	1	HRX
80	2	24	16657	S08 W70	12	400	2.5	21252	S07 W71	15	(AP)	3	R	10	2	AXX
80	2	25	16657	S07 W80	10	100	2.0									

HALE REGION 16656 CMP DATE 19.7

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16656	N23 W39	9	200	1.5									
80	2	23	16656	N23 W50	6	300	1.5									

HALE REGION 16658 CMP DATE 22.8

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16658	S22 W09	339	900	2.5									
80	2	23	16658	S23 W22	338	900	2.5									
80	2	24	16658	S23 W36	340	700	3.0									
80	2	25	16658	S23 W51	341	700	2.0									
80	2	26	16658	S23 W59	336	300	1.5									
80	2	27	16658	S21 W68	332	300	1.5									

HALE REGION 16659 CMP DATE 23.2 RETURN OF PART OF REGION 16618 ROTATION 2

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16659	S11 E07	323	2000	3.0	21253	S10 E03	328	(AF)	5	R	140	9	CSO
80	2	23	16659	S11 W06	322	2300	3.5	21253	S10 W10	328	(AF)	5	R	50	1	HSX
80	2	24	16659	S12 W19	321	2100	3.0	21253	S10 W25	329	(AF)	4				
80	2	25	16659	S11 W33	323	2300	3.0	21253	S10 W36	328	(AF)	4				
80	2	26	16659	S12 W44	321	2000	3.0	21253	S10 W50	329	(AF)	4				
80	2	27	16659	S12 W55	319	1500	2.5	21253	S10 W63	328	(AF)	3				
80	2	27	16659					21267	S04 W58		(B)	1				
80	2	27	16659					21268	S07 W52		(B)	2				
80	2	28	16659	S09 W68	318	1200	2.0									
80	2	29	16659	S10 W80	318	1000	3.0	21268	S08 W80		(AF)	2				

HALE REGION 16668 CMP DATE 23.5

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	23	16668	N06 W04	328	300	2.5	21256	N06 W03	321	(B)	3				
80	2	24	16668	N06 W18	320	100	2.5	21256	N16 W21	325	(AP)	2	R	10	2	BXO
80	2	25	16668	N06 W32	322	200	2.5									
80	2	26	16668	N07 W43	320	200	2.0									
80	2	27	16668	N08 W54	318	100	2.0									

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HALE REGION 16660 CMP DATE 24.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16660	N11 E18	312	1500	3.0		21254	N11 E19	312	(B)	4	R	290	21	DAI
80	2	23	16660	N11 E05	311	1600	3.5		21254	N10 E05	313	(B)	4	R	310	29	EAI
80	2	24	16660	N11 W11	313	1700	3.5		21254	N11 W08	312	(B)	4	R	250	29	DAO
80	2	25	16660	N12 W23	313	2400	3.0		21254	N10 W20	312	(B)	4	H	310	17	EAI
80	2	26	16660	N11 W36	313	2800	3.5		21254	N10 W35	314	(B)	4				
80	2	27	16660	N11 W48	312	1800	3.0		21254	N10 W48	313	(BF)	3				
80	2	28	16660	N12 W60	310	1000	3.0										
80	2	29	16660	N12 W74	312	500	3.0		21254	N08 W80	318	(AP)	3				

HALE REGION 16662 CMP DATE 24.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16662	S10 E26	304	300	2.5										
80	2	23	16662	S10 E14	302	300	2.5										
80	2	24	16662	S10 W04	306	200	2.5										
80	2	25	16662	S10 W15	305	200	1.5										
80	2	26	16662	S12 W25	302	100	1.5										
80	2	27	16662	S12 W38	302	100	1.5										
80	2	28	16662	S12 W54	304	200	1.0										

HALE REGION 16678 CMP DATE 24.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	26	16678	S32 W29	306	200	2.5		21263	S34 W26		ß 2					
80	2	27	16678	S32 W41	305	200	2.5		21263	S32 W40		(ß)	3				
80	2	28	16678	S32 W56	306	200	2.0			S31 W54				H	0	1	AXX
80	2	29	16678	S32 W69	307	200	2.0										

HALE REGION 16663 CMP DATE 25.5 RETURN OF PART OF REGIONS 16619 AND 16615 ROTATIONS 5 AND 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16663	S28 E36	294	300	2.0										
80	2	23	16663	S28 E22	294	200	2.0										
80	2	24	16663	S28 E08	294	200	2.5										
80	2	25	16663	S28 W06	296	100	1.5										
80	2	26	16663	S28 W16	293	100	2.0										

HALE REGION 16664 CMP DATE 25.6 RETURN OF PART OF REGION 16622 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16664	S11 E41	289	200	2.0										
80	2	23	16664	S12 E27	289	200	2.5										
80	2	24	16664	S12 E12	290	200	2.5										
80	2	25	16664	S12 E02	288	200	1.5										
80	2	26	16664	S12 W12	289	200	1.5										
80	2	27	16664	S12 W24	288	200	2.0										
80	2	28	16664	S12 W38	288	200	1.5										
80	2	29	16664	S12 W52	290	200	1.5										

HALE REGION 16686 CMP DATE 25.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	29	16686	S26 W52	290	600	4.0										
80	3	1	16686						21272	S25 W64		BF	4		220	5	D
80	3	2	16686						21272	S26 W75		BF	3		210	3	C
80	3	3	16686							S26 W94					140	1	H

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HALE REGION 16679 CMP DATE 25.9

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	26	16679	N17 W12	289	100	3.0									
80	2	27	16679	N16 W24	288	200	3.0	21269	N17 W22		(B)	2				
80	2	28	16679	N16 W37	287	400	3.5									
80	2	29	16679	N17 W50	288	400	3.0									

HALE REGION 16661 CMP DATE 26.1 RETURN OF PART OF REGION 16617 ROTATION 4

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16661	N23 E38	292	300	2.0									
80	2	23	16661	N23 E24	292	300	2.5									
80	2	24	16661	N25 E14	288	200	3.0									
80	2	25	16661	N27 E03	287	800	3.0	21261	N26 E05	287	(B)	4				
80	2	26	16661	N26 W12	289	900	3.0	21261	N27 W09	288	(B)	3				
80	2	27	16661	N27 W23	287	500	2.5	21261	N29 W28	293	(AF)	3				
80	2	28	16661	N28 W34	284	400	3.0									
80	2	29	16661	N28 W46	284	300	3.0									

HALE REGION 16666 CMP DATE 27.2 RETURN OF PART OF REGION 16622 ROTATION 3

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16666	S17 E56	274	300	2.0									
80	2	23	16666	S19 E42	274	600	1.5									
80	2	24	16666	S18 E28	274	700	3.0	21260	S16 E25		AP	1	R	10	3	BXO
80	2	25	16666	S21 E18	272	300	2.0	21260	S16 E13		AP	1				
80	2	26	16666	S21 E06	271	400	2.5									
80	2	27	16666	S21 W05	269	400	2.5									
80	2	28	16666	S19 W22	272	200	2.5									
80	2	29	16666	S19 W35	273	200	2.5									

HALE REGION 16677 CMP DATE 27.2

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	25	16677	S11 E17	273	500	3.0									
80	2	26	16677	S11 E05	272	600	3.0									
80	2	27	16677	S10 W07	271	800	3.0									
80	2	28	16677	S10 W22	272	800	3.0		S10 W19			H		130	11	DAO
80	2	29	16677	S10 W35	273	1000	3.5									

HALE REGION 16669 CMP DATE 27.5

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	23	16669	N25 E45	271	200	1.5									
80	2	24	16669	N25 E33	269	100	1.5									
80	2	25	16669	N27 E23	267	100	2.0									
80	2	26	16669	N26 E10	267	100	2.0									
80	2	27	16669	N26 W02	266	100	2.0									
80	2	28	16669	N26 W14	264	100	2.5									

HALE REGION 16665 CMP DATE 27.7 RETURN OF PART OF REGION 16622 ROTATION 3

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	2	22	16665	S13 E61	269	1100	3.0	21255	S12 E62	269	(B)	4	R	150	7	DAO
80	2	23	16665	S12 E48	268	1700	3.0	21255	S12 E48	270	(B)	4	R	130	7	DSO
80	2	24	16665	S12 E33	269	1700	3.5	21255	S13 E35	269	(B)	4				
80	2	25	16665	S14 E23	267	1600	3.5	21255	S11 E22	270	(BP)	2				
80	2	26	16665	S14 E12	265	1200	3.0	21255	S09 E08	271	(BP)	4	H	120	11	DSO
80	2	27	16665	S14 E00	264	900	3.0	21255	S09 W07	335	(AP)	4				
80	2	28	16665	S14 W15	265	600	3.0									
80	2	29	16665	S14 W28	266	600	3.0	21255	S09 W34	272	(AP)	4				
80	3	1	16665					21255	S08 W50		AP	4		100	2	H
80	3	2	16665					21255	S08 W61		AP	4		70	1	H
80	3	3	16665						S09 W78					60	1	H

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HALE REGION 16667 CMP DATE 27.9 RETURN OF PART OF REGION 16625 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	22	16667	N08 E69	261	600	2.0								
80	2	23	16667	N08 E55	261	1100	2.5								
80	2	24	16667	N08 E39	263	1400	3.0								
80	2	25	16667	N08 E27	263	1500	3.0	21262	N11 E28	264	AP	1			
80	2	26	16667	N08 E15	262	1400	3.0								
80	2	27	16667	N09 E02	262	1500	3.0								
80	2	28	16667	N09 W12	262	1100	3.0								
80	2	29	16667	N09 W26	264	1100	3.0	21273	N12 W23		(AP)	2			
80	3	4	16667	N11 W88		200	2.0								

HALE REGION 16671 CMP DATE 28.4 RETURN OF PART OF REGION 16625 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	23	16671	N05 E64	252	100	2.0								
80	2	24	16671	N04 E48	254	100	1.5								
80	2	25	16671	N04 E35	255	200	2.5		N05 E35				H	10	2 BXO
80	2	26	16671	N04 E24	253	400	3.0	21264	N05 E26		(B)	3			
80	2	27	16671	N04 E09	255	500	3.0	21264	N04 E12		(B)	3			
80	2	28	16671	N04 W05	255	300	3.0								
80	2	29	16671	N04 W19	257	400	3.0	21264	N05 W15		(B)	3			
80	3	1	16671					21264	N06 W30		AF	2		20	3 H
80	3	2	16671					21264	N05 W40		AF	1		10	1 A
80	3	3	16671						N04 W61					10	2 B
80	3	4	16671	N04 W72		400	2.5								

HALE REGION 16670 CMP DATE 29.5 RETURN OF PART OF REGION 16627 ROTATIONS 7 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	23	16670	N19 E71	245	600	2.0								
80	2	24	16670	N19 E57	245	900	3.0								
80	2	25	16670	N18 E46	244	1700	3.0								
80	2	26	16670	N18 E35	242	1400	3.0								
80	2	27	16670	N18 E22	242	1500	3.0								
80	2	28	16670	N18 E10	240	1200	3.0								
80	2	29	16670	N18 W04	242	1200	3.0								
80	3	4	16670	N20 W52		1200	2.0								

HALE REGION 16672 CMP DATE 29.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
80	2	23	16672	S25 E79	237	200	2.5								
80	2	24	16672	S25 E61	241	200	3.0								
80	2	25	16672	S27 E51	239	500	3.5								
80	2	26	16672	S27 E39	238	300	3.0								
80	2	27	16672	S27 E27	237	300	3.0								
80	2	28	16672	S26 E13	237	300	3.0								
80	2	29	16672	S26 E01	237	300	2.5								

CONTIGUOUS PLAGES, FEBRUARY 1980

16647 - 16644 - 16650
16665 - 16677

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MT. WILSON OBSERVATORY ON FEB. 5, 7, 13-21, 1980.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON FEB. 13-21 AND 28, 1980.

REMARKS: REGION 16627 IS MADE UP OF THE TRAILING PORTION OF REGION 16566 AND THE LEADING PORTION OF REGION 16572.

DAILY CALCIUM PLAGE INDEX

FEBRUARY 1980

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
80	2	1	62.8	80	2	11	48.5	80	2	21	*
80	2	2	67.7	80	2	12	58.2	80	2	22	27.9
80	2	3	56.7	80	2	13	*	80	2	23	28.4
80	2	4	74.0	80	2	14	*	80	2	24	29.4
80	2	5	*	80	2	15	*	80	2	25	35.7
80	2	6	70.3	80	2	16	*	80	2	26	36.2
80	2	7	*	80	2	17	*	80	2	27	43.8
80	2	8	60.4	80	2	18	*	80	2	28	42.9
80	2	9	64.3	80	2	19	*	80	2	29	66.7
80	2	10	49.6	80	2	20	*				

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0345	0502	0403	1	5	2			2		1		0350	16632
01	0825	0845	0833	1	5				1	1			0825	16622
01	1012	1035	1015	1	5	1		1	1	1	1		*	
01	1742	1805	1750	1	3						6		1729	16631
02	0705	0754D	0722	1-	1				1				0710E	16627
02	0754E	0854	0805	1-	1				1				0755	16631
02	1107	1135	1115	1	5			2	2	1	1		1109	16631
02	1239	1345	1253	1-	5	1		2	1	1	1		NF	
02	1417	1442	1431	1-	5			1	1		1		NF	
02	1633	1742	1642	1	5				1		12		1632E	16631
02	1756	1826	1804	1	5				1		12		1753	16627
02	1912	1939	1917	1	3						10		NF	
03	0243	0320	0248	1-	1				2				NF	
03	1006	1030	1011	2	5	3		5	1	1	2		1010E	16627
03	1322	1640	1403	2	5	4		5	1	1	2		1329E	16634
04	0245	0315	0250	1	3	1			1				NF	
04	0513	0644	0525	1	3				2				NF	
04	0920	0945	0925	1-	3	1			1				*	
04	1339	1520	1405	1	5	1		3	1	1	1		NF	
04	1715	1754	1724	1	5				1		12		1709	16634
04	1811	1828	1818	1-	3						10		1709	16634
04	1828	1942	1833	1+	5				1		11		1709	16634
04	2129	2249	2140	2	5				2		10		NF	
05	0507	0540	0515	1-	3				2				NF	
05	0748	0825	0802	1	5			2	1				0747	16631
05	0833	0900	0839	1	5			2	1				NF	
05	0958	1030	1005	1	5	1		3	1	1			0959E	16639
05	1202	1245	1229	1-	5			3	2		1		NF	
05	1546	1634	1607	1-	3				1		2		NF	
05	1727	1846	1741	2	5	1			1		8		NF	
05	1951	2015	1957	1	3						3		NF	
05	2041	2110	2046	1	5				2		7		NF	
05	2310	0014D	2341	1-	5				1		3		NF	
06	0013	0128	0024	1+	3	1			1				NF	
06	0303	0423	0315	2	3	1			1				*	
06	0503	0626	0518	1	3	1			1				*	
06	1124	1200	1130	1	5	1		3	1	1	1		1025	16631
06	1221	1300	1228	1	5	1		3	1	1	1		NF	
06	1324	1430	1340	1+	5	1		3	1	1	1		NF	
06	1427	1500	1436	1	3						3		NF	
06	1606	1657	1616	1	5					1	10		*	
06	1721	1748D	1733	2	5	2			1		14		*	
06	1751	1830	1758	1+	5				1		9		*	
06	2253	2326	2259	1-	5				1		1		2251	16631
07	0004	0150	0018	1-	3				2				NF	
07	0304	0624	0312	1	3				2				NF	
07	0433	0604	0438	1+	5	2			1		1		*	
07	0700	0814	0712	1-	3				2				0708E	16631
07	0828	0850	0832	1	3	1				1			NF	
07	0955	1025	1001	1-	3	1				1			1006E	16631
07	1147	1210	1150	1	3	1				1			NF	
07	1647	1655D	1655	1	5				1		9		NF	
07	1713	1814	1717	1	5				1		6		1707	16643
07	1903	1955	1908	1-	3						3		1903	16640
08	0141	0230	0146	1	5				2		1		0144	16647
08	0549	0645	0603	1-	3				2				0554	16647
08	0835	0900	0843	1-	5	1			1	1			0825	16634
08	0904	1042	0912	3	5	4		4	1	1	2		0905	16627
08	1233	1250	1235	1	5	1		2	1	1	2		1233	16647
08	1456	1609	1515	1	5			2	1		2		1445	16634
09	0513	0526	0518	1-	3				2				0517	16631
09	0630	0700D	0639	1-	5	1			2				NF	
09	0740	0848	0753	1-	5			1	2				0735	16639
09	0848	0943	0907	1	3			2					0857	16648

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
09	1104	1215	1200	1	3			3					1150	16631
09	1135	1150D	1150	1-	5			1	2	1	1		1150	16631
09	1155	1220	1159	1-	5			2	1	1	2		1150	16631
09	1305	1320	1310	1-	5	1		3	1	1	1		1306	16631
09	1555	1645	1613	1-	5				1		7		NF	
09	1839	1915	1854	1	3						8		1842	16639
09	2109	2130	2116	1-	3						5		NF	
10	0327	0404	0338	1-	3				2				NF	
10	0416	0518	0437	1	5	1			2		1		NF	
10	1011	1030D	1030	1-	5	1		4	2	1	1		1015	16634
10	1037	1120	1047	1+	5	2		4	1	1	2		1045	16653
10	1521	1715	1550	2	5	1		1	1		8		NF	
10	1752	1823	1757	1	3						6		NF	
10	1854	1930	1903	1+	3				1		11		1852	16653
10	2019	2051	2028	1-	5				2		5		2018	16653
10	2329	0045	2335	1	5				2		2		2329	16653
11	0247	0322	0254	1-	5				2		1		NF	
11	0439	0546	0457	1-	3				2				0444	16641
11	0717	0817	0724	1	5				2		1		0720E	16653
11	1007	1100	1020	1+	5	1		4	2	1	1		1019E	16631
11	1640	1743	1655	1+	5				1		11		1641	16641
11	1926	2020	1945	1	5				1		8		1932	16631
11	2038	2139	2047	1+	5				1		12		2037	16653
11	2128	2200	2133	1-	3						3		2128	16653
12	0739	0800	0743	1-	5				1	1			0738E	16641
12	0836	0910	0843	1	5				1	1	1		0835	16647
12	1037	1110	1047	1	5	1		1	1		1		1053	16641
12	1745	1812	1752	1-	5				1		4		1744	16641
12	2144	2215	2158	1-	5				1		1		2124	16641
13	0415	0448	0420	1-	1				1				0417	16653
13	0300	0354	0308	1-	3	1			1				0304	16655
13	1017	1020D	1020	1-	1			1		1			1018	16641
13	1040	1050D	1050	1	5	1		1	2	1	1		1040	16644
13	1100	1125	1110	1-	5	1		1	1	1	1		1055	16655
13	1129	1320	1158	1+	5	1		3	1	1	1		1140E	16655
13	2032	2109	2039	1	3						6		2032	16655
13	2137	2200	2142	1-	5				1		4		*	
14	0027	0121	0032	1-	3				2				*	
14	0133	0148	0137	1-	3				2				*	
15	0242	0452	0255	1-	3				2				0247	16655
15	0315E	0352	0329	1-	3	1			1				0318E	16655
15	0824	0918	0842	1	5				1	1			*	
15	2116	2136	2122	1	3	1				1			2107	16644
15	2251	2325	2301	1-	5				1		1		*	
15	2345	0050	2352	1	5				2		1		2346	16655
16	0717	0853	0733	1	5				2		1		NF	
17	0842	0900	0845	1-	5	1			2				0843	16653
17	1155	1220	1211	1	3			2					*	
19	0747	0820	0756	1	5	1			2	1	2		0745E	16659
19	2254	2324	2259	1-	5				1		1		2254	16659
20	1751	1935	1800	1	5	1			1		9		1751	16658
20	2016	2043	2021	1-	5				1		11		2016	16658
20	2253	2317	2257	1-	5				1		3		*	
21	0321	0354	0327	1-	3				2				0321	16641
21	1213	1310	1223	1	5			1	1	1	1		1256	16666
21	1449	1530	1459	1-	5			1	1	1	1		1446	16653
21	1815	1853	1829	1-	5	1		1	1		10		*	
22	1903	1945	1909	1	3						8		1859	16667
24	0200	0300	0203	1-	5				2		1		NF	

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1980

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
24	0508	0609	0514	1	5				2		1		*	
24	1124	1155	1132	1-	3	1				1			1154E	16676
24	1805	1818	1809	1-	3						3		1756	16676
25	0445	0630	0506	1	5	1			2		1		0455	16674
25	1622	1651	1629	2	3						11		1636	16673
25	1706	1800	1721	1+	3						3		NF	
25	1945	1957D	1957	1+	3						12		1955	16676
26	1015	1048	1026	1	5	2		1	1	1	1		1015E	16673
26	1454	1537	1503	1-	3				1		1		1452	16677
26	1748	1850	1801	5	1	1			1		5		NF	
27	0334	0604	0403	2	3	2			1				0328E	16682
28	1206	1320	1212	3	5	3		3	1	1	2		1207	16673
29	0836	0900	0844	1-	5			1	1	1			0835	16676
29	1444	1515	1450	1+	5	3		4	1	1	12		1441	16673

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) AND STATION
01	1400-1750 UM (10, 13, 16 kHz)
05	0000-2400 A34; 1030-1400 UM (16 kHz)
06	0000-2400 A34
07	0000-2400 A34
09	0000-2400 A34; 1840-2035 UM (10, 13, 16 kHz)
11	1036-1300 UM (16 kHz)
12	1005-1400 UM (16 kHz)
15	0100-0310 GN; 1740-2015 UM (10, 13, 16 kHz)
18	0510-0535 WWV (10 MHz)
19	1000-1405 UM (16 kHz)
20	0430-0436 GN
24	1755-2400 UM (10, 13 Khz)
25	0000-2400 UM (10, 13 kHz)
26	0000-2400 UM (10, 13 kHz); 1000-1400 UM (16 kHz)
27	0000-1300 UM (10, 13 kHz); 0400-0450 WWV
29	0930-1115 UM (10, 13, 16 kHz)

STATIONS REPORTING FOR FEBRUARY 1980:

Cleveland, Ohio, USA	SES	Luechow, GFR	SWF
Ellensburg, Washington, USA	SES	Mahwah, New Jersey, USA	SES
Glenorchy, Tasmania, Australia	SWF	Missoula, Montana, USA	SES
Hiraiso, Japan	SWF	Panska Ves, Czechoslovakia	SEA, SES, SWF
Hobart, Tasmania, Australia	SEA	Pinehurst, North Carolina, USA	SES
Huancayo, Peru	SWF	St. Cloud, Minnesota, USA	SES
Inubo, Japan	SPA	Sao Paulo, Brazil	SES, SPA
Juliusruh, GDR	SWF	Tavares, Florida, USA	SES
Kansas City, Kansas, USA	SES	Thornwood, New York, USA	SES
Kasugai, Japan	SPA	Trenton, New Jersey, USA	SES
Kuehlungsborn, GDR	SEA, SPA	Upice, Czechoslovakia	SEA
Latrobe, Pennsylvania, USA	SES	Valley Cottage, New York, USA	SES
Littleton, Colorado, USA	SES	Vsetin, Czechoslovakia	SEA
Louisville, Kentucky, USA	SES	Zilina, Czechoslovakia	SEA

SIDs BY HALE REGION

FEBRUARY 1980

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
REGION																													
16622	1																												
16627		2	1					1																					
16631	1	3			1	2	2		5		2																		
16632	1																												
16634			1	3				2		1																			
16639					1				2																				
16640							1																						
16641											2	4	1								1								
16643							1																						
16644													1		1														
16647								3				1																	
16648									1																				
16653										4	3		1				1				1								
16655													4		3														
16658																				2									
16659																			2										
16666																					1								
16667																						1							
16673																									1	1		1	1
16674																									1				
16676																								2	1				1
16677																									1				
16682																											1		
NO ASSOCIATED FLARE			3	1	4	8	4	5		3	4	1				1								1	1	1			
NO FLARE PATROL	1				1		5	1					1	2	2		1			1	1				1				
EVENT TOTALS	4	8	3	8	10	11	10	6	11	9	8	5	8	2	6	1	2	0	2	3	4	1	0	4	4	3	1	1	2

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0745	CULG	0003	0003.5	2							IIIG
			CULG	0004	0004.5	1							IIIG
			LEAR				0005.0	1053.0	1				B
			CULG				0046	0046.5	1	0046	0046.5	1	IIIB
			CULG				0048.5	0625					IIIN,W
			CULG				0110.5	0111		0111	0111.5		IIIG,W
			CULG				0158		2	0158	0159	2	IIIB
			PALE				0158.1	0158.4	1				III
			CULG				0159	0200	1				DP
			CULG				0323.5	0738	1				N,RS,DP
			CULG	0335	0335.5	1	0335	0335.5	2	0335	0335.5	2	IIIB,V
			LEAR				0335.2	0343.3	2				CONT
			PALE				0335.2	0335.5	1				III
			CULG				0338.5	0340	2	0339	0340	2	IIIG
			PALE				0339.7	0339.9	1				III
			CULG	0342.5	0343	1	0343		1	0343		1	IIIB
			CULG	0534	0534.5								UNCLF,W
			CULG				0621		1				IIIB
			LEAR				0841.5	0842.8	2				CONT
	0730	1600	DWIN	1149.4	1149.6	1							IIIG
	1151	1543	WEIS				1157	1543	2				IS,CONT
			WEIS				1157.7	1157.7	1				IIIG
			DWIN	1212.0	1212.8	2							IIIG
			DWIN	1323.3	1323.6	1							IIIG
			WEIS				1333.6	1334.3	2				IIIG
	0800	1530	BLEN				1401.5	1402.5	1				IIIG
			WEIS				1401.7	1402.8	2				IIIG
	1457	2345	HARV				1457	2345	2				IN,C,DC
			HARV				1929		2				IIIG
			CULG				2046	2400					IIIS,W
	2046	2400	CULG				2046	2400	2				IS,C,DC
			CULG							2100	2229		IIIN,W
			CULG				2106	2349	1				N,RS,DP
			CULG	2125	2246								IN,W
			CULG				2140.5		1				IIIB
			CULG				2219.5		1	2219.5		1	IIIB
			HARV	2306		2							IIIG
			CULG				2308		1				IIIB
			CULG				2354		2	2354		1	IIIB
			CULG							2355		1	IIIB
			CULG				2355.5		1				IIIB
02			CULG				0000	0745					IIIS,W
	0000	0745	CULG				0000	0745	1				IS,C,DC
			CULG				0002.5		1				IIIB
			CULG							0007	0618		IIIN,W
			CULG				0042.5		2	0042.5		2	IIIB
			CULG				0101	0558	1				N,RS,DP
			CULG	0229	0745								IN,W
			CULG				0339	0339.5	2	0339	0339.5	1	IIIG
			CULG				0357	0357.5	1	0357	0357.5	1	IIIB
			CULG	0430	0431	1	0430.5	0431	1				IIIG
			CULG				0451		1				IIIB
			CULG	0453.5	0454	1	0453.5	0454	1				IIIG
			CULG				0642		1				IIIB
			CULG	0644.5	0645	1							IIIG
			CULG				0722	0745	1				SCINT
			CULG				0725	0725.5	1				UNCLF
	0728	1545	WEIS				0731	1542	2				IS,CONT
			WEIS				0839	1515	2				IIIN
	0730	1600	DWIN	0841.6	0842.5	1							IIIG
	0800	1530	BLEN				0845.4	0845.6	1				IIIB
			BLEN				1206.5	1207.3	2				IIIGG,U
			WEIS				1206.6	1208.6	2				IIIGG,U
			BLEN				1310	1530 D	1				I,W
			HARV				1400	2215	1				IN
	1353	2345	HARV				1441	1442	2				IIIG
			BLEN				1441.3	1441.6	2				IIIG
			HARV	1514	1515	1	1514	1515	2				IIIG
			HARV				1546	1549	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			HARV	1629	1631	1	1626	1638	2				IIIGG
			PALE				1752.1	1754.3	2				V
			HARV	1754	1755	1	1751	1803	2				IIIGG
			HARV				1853	1854	2				IIIG
			HARV				1937	1939	2				IIIG
			PALE				1937.2	1938.2	2				V
			HARV				1954	1958	2				IIIGG
			HARV	2006		1	2006		2				IIIG
			PALE				2018.5	2019.4	2				V
			HARV				2019		2				IIIG
			PALE				2032.5	2034.6	3				V
			HARV				2033	2035	2				IIIGG
	2045	2400	CULG	2045	2400	1							IS
			CULG				2049	2400					IN,W
			CULG				2107	2400					IIIN,W
			CULG				2115.5	2116	1	2115.5	2116	1	IIIG
			CULG	2127.5	2128.5	1	2127.5	2129	3	2128	2128.5	2	IIIG
			PALE				2127.7	2129.0	3				V
			HARV				2128	2140	3				IIIGG,V
			CULG				2131	2141	1				IIIS
			CULG				2155		1				IIIB
			HARV				2155		1				IIIG
			CULG				2311	2314	1	2311	2314	2	IIIGG
			HARV				2312	2314	1				IIIG
			CULG				2316			2316			IIIB,W
			CULG							2319.5			IIIB,W
			CULG	2321	2322	1	2321.5	2323.5	3	2321.5	2324.5	3	IIIG,V
			HARV				2321	2322	2				IIIG
			LEAR				2321.4	2323.2	2				CONT
			CULG							2359.5			IIIB,W
03			CULG	0000	0746	1							IS
	0000	0746	CULG				0000	0244					IS,W
			CULG	0001	0002	1	0001	0001.5	1	0001	0001.5	2	IIIG
			CULG				0013.5	0015.5	2	0013.5	0015.5	2	IIIG
			CULG				0037	0746		0040	0601		IIIN,W
			CULG				0117.5	0118	2	0117.5	0118	2	IIIB,V
			LEAR				0139.8	0141.0	2				CONT
			CULG	0140		2	0140	0140.5	3	0140	0140.5	3	IIIG
			CULG				0156	0726	1	0156	0602	1	IIIG,N
			CULG				0217		2	0217		1	IIIB
			CULG				0244	0610	1				IS,C,DC
			CULG				0245.5	0246	2	0245.5	0246	2	IIIG
			CULG				0250	0251	2	0250.5	0251	1	IIIG
			CULG	0258	0304	2							N,DCIM
			CULG				0310	0310.5	2	0310	0310.5	2	IIIB
			CULG				0338.5	0339	2	0338.5	0339	2	IIIG
			LEAR				0338.7	0339.3	2				CONT
			LEAR				0338.7	0339.3	2				CONT
			LEAR				0348.3	0352.0	2				CONT
			CULG				0348.5	0349.5	2	0348.5	0349.5	2	IIIG
			CULG				0351.5		2				IIIB
			LEAR				0558.1	0605.7	2				CONT
			CULG	0558.5		1	0558.5	0559	2	0558.5	0559	2	IIIG
			CULG				0600	0606	1				IIIS
			CULG				0610	0746	2				IS,C,DC
			CULG				0625	0629	1				IIIS
	0726	1112	WEIS				0729	1545	2				IS,CONT
	1118	1546	WEIS				0805	1540	2				IIIN
			WEIS				0849	0906	3				
	0800	1530	BLEN	0859.7	0904.7	2	0859.7	0910.4	2				DCIM
	0730	1400	DWIN	0910.1	0910.3	1							IIIG
			LEAR				0910.4	0911.0	2				CONT
			LEAR				1004.4	1006.3	2				CONT
			BLEN				1013.0	1530 D	1				I,DC,W
			BLEN				1033.5	1035.7	2				IIIG
			DWIN	1035.5	1035.8	1							IIIG
			BLEN				1113.6	1116.2	1				IIIG
			BLEN				1154.1	1154.3	3				IIIG
			BLEN				1223.1	1225.5	2				IIIG,U

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03			BLEN				1256.2	1303.9	1				IIIG
			DWIN	1332	1350	2						IV	
			BLEN	1338.0	1345.0	1	1338.0	1530 D	3				IV,F,P
			BLEN				1338.1	1338.4	2				IIIG
	1400	2340	HARV	1408	1436	2	1408		1				IIIGG
			HARV				1424	1427	1				IIIG
			HARV	1505	1530	2						IV	
			WEIS	1506	1517	3							
			HARV				1533	1536	2				IIIG
			HARV	1551	1552	2							IIIG
			HARV	1601	1606	2	1601	1606	2				IIIG
			HARV				1639		1				IIIG
			PALE				1839.0	1839.9	2				V
			HARV				1840	1843	2				IIIG
	2046	2400	CULG				2046	2320					IS,W
			CULG				2057	2327					IIIN,W
			CULG				2112.5		1				IIIB
			HARV				2137	2140	2				IIIG
			CULG				2139	2140.5	2	2139.5		1	IIIG
			CULG	2235	2236	1	2235	2236.5	2	2235	2235.5	2	IIIGG
			HARV				2235	2237	2				IIIG
04	0000	0746	CULG				0045	0746					IIIN,W
			CULG				0217.5	0222	1	0220	0221	1	IIIGG
			CULG	0456	0458								I,W
			CULG	0502	0504.5	2							I,DC
			CULG				0506.5		1				IIIB
			CULG	0637.5	0640								IN,W
			CULG	0644.5	0645.5	2							IIIG
			CULG				0709.5	0710.5	2				IIIG
			LEAR				0709.7	0713.2	2				CONT
			CULG				0710	0716	1				N,RS,DP
			CULG				0712.5	0713	1				IIIG
	0725	1548	WEIS				0734	1329	1				IIIN
	0745	0847	BLEN										
	0750	1530	DWIN										
	1400	2345	HARV	1611		2	1611	1615	2				IIIG
			HARV				1711	1809	2				I
			HARV	1713		2	1708	1746	3				IIIGG
			HARV				1745	1746	2				IIIG
			HARV				1836		2				IIIB
			HARV				1916		2				IIIG
	2046	2400	CULG				2209	2209.5	1	2209	2209.5	1	IIIG
			HARV				2209		2				IIIB
			CULG	2250	2315								IS,W
			CULG	2345	2400								IS,W
05	0000	0746	CULG	0000	0746								IN,W
			CULG				0231	0231.5					IIIG,W
			LEAR				0231.0	0240.9	1				CONT
			CULG	0237	0240	1	0237	0239.5	1	0237	0240.5	1	IIIG
			CULG				0249.5		1	0249.5		1	IIIB
			CULG				0256	0315					IS,W
			CULG				0354						IIIB,W
			CULG				0552.5		1				IIIB
			CULG				0601	0601.5					IIIG,W
	0723	1455	WEIS				0743	1520	2				IIIN
			WEIS				0924.3	0924.4	2				U
			WEIS				1023.7	1025.7	2				IIIG,RS
			WEIS	1128.2	1128.4	2							IIIG
	0900	1130	DWIN	1128.3	1128.4	1							IIIG
			WEIS	1133.3	1133.7	2							IIIG
	1320	1600	DWIN										
	1500	1550	WEIS										
	1325	1535	BLEN				1518.7	1518.9	2				IIIB
	1400	2345	HARV				1519		2				IIIG
			HARV	1526	1532	2							IIIG
			BLEN	1530.4	1532.5	1							DCIM
			HARV				1555	1556	2				IIIG
			HARV				1605		2				IIIB

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05			HARV				1617		2				IIIG
			HARV				1620	1625	2				IIIG
			HARV				1806	1808	2				IIIG
			PALE				1915.9	1916.2	2				V
			HARV				1916		3				IIIG
			HARV				2005	2008	2				IIIG
			PALE				2005.5	2006.5	1				V
			PALE				2040.7	2040.9	1				V
	2046	2400	CULG				2049	2056					IIIS,W
			HARV				2049	2055	2				IIIGG
			CULG				2051	2315	1				IIIN
			PALE				2051.6	2054.8	1				CONT
			HARV				2111	2112	2				IIIG
			HARV				2123	2128	3				IIIGG
			PALE				2123.9	2125.5	2				V
			CULG				2124.5	2125.5	3	2125		1	IIIG
			PALE				2127.4	2127.9	1				III
			HARV				2142	2145	2				IIIG
			CULG				2143	2143.5	2				IIIG
			PALE				2143.1	2145.1	1				CONT
			CULG				2231	2231.5	1	2231	2231.5	1	IIIG
			HARV				2231		2				IIIG
			CULG				2244.5	2247	1	2244.5	2247	1	IIIGG
			CULG				2244.5	2245.5	1				N,RS,DP
			HARV				2245	2247	2				IIIG
			LEAR				2245.8	2246.9	1				CONT
			PALE				2245.8	2247.0	2				V
			HARV				2259	2300	2				IIIG
			LEAR				2259.7	2358.4	1				S
			HARV				2309		2				IIIG
			CULG				2356	2358.5	1	2357	2358.5	1	IIIG
06	0000	0746	CULG							0019	0035	1	SWF
			CULG				0041	0713					IIIN,W
			CULG							0100	0101		IIIG,W
			CULG				0108	0109.5	2	0108.5	0110	2	IIIG
			CULG				0245.5	0247.5	1	0245.5	0247.5	1	IIIG
			CULG				0249.5		2	0249.5		1	IIIB
			CULG				0308		1				RS,IIIB
			LEAR				0430.6	0432.8	2				V
			CULG	0431	0431.5	2	0430.5	0432	3	0431.5	0432	1	IIIG,V
			CULG	0433		1							IIIB
			CULG	0438	0746								IN,W
			CULG				0459.5	0504	2	0459.5	0504	1	IIIG
			LEAR				0459.5	0503.6	2				CONT
			CULG				0516		3				IIIB
			CULG	0628.5	0629.5	1	0628.5	0629.5	1				IIIG
			CULG	0700.5			0701						IIIB,W
			CULG				0708	0710	2				IIIG
			LEAR				0708.1	0710.0	2				CONT
	0715	1600	DWIN										
	0722	1552	WEIS				0806.7	0807.0	2				IIIG
			WEIS				0825	1213	2				IN
	0745	1535	BLEN				0917	1215	2				I,DC
			BLEN				1127.2	1127.9	2				IIIG
			WEIS				1137.3	1138.6	2				IIIGG
			WEIS				1253.9	1254.2	2				IIIG
	1400	2345	HARV				1412	1413	1				IIIG
			WEIS				1412.2	1413.0	1				IIIG
			WEIS				1426.0	1426.3	2				IIIG
			WEIS				1456.6	1459.4	2				IIIG
			BLEN				1458.4	1458.4	1				IIIB
			HARV				1616	1617	2				IIIG
			HARV	1702	1704	2							IIIG
			HARV				1824	1826	2				IIIG
			HARV				1830		1				IIIB
			HARV				1832	1833	1				IIIG
			HARV				1837	1838	1				IIIG
			PALE				1909.8	1910.1	1				III
			HARV				1910		1				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06	2046	2400	CULG	2046	2400								IS,W
			CULG	2152	2155.5	1							IIIN
			CULG				2228.5						IIIB,W
			CULG	2255	2256	2							IIIG
			HARV				2255	2256	2				IIIG
			CULG	2259.5		1							IIIB
			LEAR				2341.8	2342.2	1				CONT
			CULG				2342		1	2342		1	IIIB
07	0000	0746	CULG	0000	0554								IN,W
			CULG	0041	0234	1							IIIN
			CULG				0317	0317.5	1	0317	0317.5	1	IIIG
			LEAR				0317.0	0317.8	1				CONT
			CULG				0330	0732					IIIN,W
			LEAR				0330.0	1050.0	1				B
			CULG				0332.5		1	0332.5		1	IIIB
			CULG				0417	0418	1	0417	0418	1	IIIG
			CULG							0434	0444	1	SWF
			CULG				0514		2				IIIB
			CULG	0554	0746								IS,W
			CULG				0623		1				IIIB
	0729	1553	WEIS				0731	1552	2				IIIN
	0900	1255	DWIN	0909.9	0910.0	1							IIIG
			WEIS				1413.9	1414.4	2				IIIG
	0740	1540	BLEN				1413.9	1414.3	1				IIIG
	1400	2345	HARV	1414	1415	1	1414	1416	2				IIIG
			HARV				1423		1				IIIB
			HARV				1450	1451	2				IIIG
			HARV	1525		2							IIIG
			HARV				1552		2				IIIG
			HARV				1725		2				IIIB
			HARV				2015	2016	2				IIIG
			PALE				2036.8	2037.5	1				III
			HARV				2038		2				IIIG
	2046	2400	CULG	2126	2126.5	2							DCIM
			CULG	2308	2308.5	1							DCIM
			HARV	2308	2309	2							IIIG
			CULG	2332.5	2333	1	2332.5	2333	1				IIIG
			HARV				2333		1				IIIG
08	0000	0746	CULG	0053	0304								IIIG,N,W
			CULG	0113.5	0114.5	1							IIIG
			CULG				0114	0114.5					IIIG,W
			CULG	0117	0746								IN,W
			CULG				0304						IIIB,W
			CULG	0304		2							IIIB
			CULG				0319	0740					IIIN,W
			CULG				0431	0431.5	2				IIIG
			CULG				0511		1				IIIB
			CULG	0659.5		2							IIIB
			CULG	0703		1							IIIB
	0717	0919	WEIS				0735	1526	2				IIIN
	0840	1600	DWIN	0904.8	0915.0	2						IV	DCIM
	0740	1545	BLEN	0905.0	0907.0	3	0905.0	0907.0	3				IIIGG,U
			WEIS				0905.2	0908.2	2				IIIGG
			WEIS				0905.3	0910.2	3				IIIG
			LEAR				0905.6	0917.0	3			IV	
			BLEN				0907.4	0917.4	3			II	
			WEIS				0909.0	0917.6	3			II	HARM
			LEAR				0910.5	0921.3	2			II	
			DWIN	0933.1	0933.5	1						IV	P
	1400	2345	HARV				1403	2345	2				IN
			HARV				1430	1433	2				IIIGG
	0924	1554	WEIS				1430.3	1433.7	3				IIIGG
			HARV				1523	1524	2				IIIG
			BLEN				1523.6	1523.7	2				IIIB
			HARV				1648	1649	2				IIIG
			HARV				1722	1726	3				IIIGG
			HARV				1754	1755	1				IIIG
			HARV				1804		2				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
08			HARV				1838	1840	2				IIIG
			HARV				1858		1				IIIG
			HARV				1900		2				IIIG
			PALE				1900.3	1900.9	2				V
			HARV				1954		2				IIIB
			HARV				1958	2000	3				IIIG
			PALE				2011.8	2012.7	2				V
			HARV				2013		2				IIIG
	2046	2400	CULG	2046	2247		2046	2400					IS,W
			CULG				2116	2326					IIIN,W
			CULG	2247	2258	1							IS
			CULG	2258	2400								IS,W
09	0000	0746	CULG	0000	0511								IN,W
			CULG							0024	0024.5		IIIG,W
			CULG				0214.5		1				IIIB
			CULG				0216	0216.5	2	0216	0217	1	IIIG
			CULG				0341	0746					IIIN,W
			CULG				0458	0604					IN,W
			CULG	0511	0746								IS,W
			CULG				0530.5	0533	2				UNCLF
			CULG				0539	0543.5	2			II	
			CULG				0727	0727.5	1				IIIG
	0717	1557	WEIS				0817	1555	2				IIIN
	0740	1547	BLEN	0832.2	0832.8	1							IIIG
			WEIS				0932	1553	2				IN
			BLEN				0937.0	1547 D	2				I,DC
	0710	1615	DWIN	1021.1	1021.2	2							IIIG
	1400	0000	HARV				1403	0000	2				IN
			HARV				1439	1440	1				IIIB,W
			HARV				1442		2				IIIB
			HARV				1503		2				IIIG
			HARV				1533		1				IIIG
			HARV				1548	1549	2				IIIG
			HARV	1552		2	1552		2				IIIB
			HARV				1608	1610	2				IIIG
			DWIN	1611.6	1612.5	1							IIIG
			HARV	1612		2	1612		2				IIIG
			HARV				1616		2				IIIG
			HARV				1622	1623	2				IIIG
			HARV				1628	1630	2				IIIG
			HARV				1633	1634	2				IIIB
			HARV				1636	1637	2				IIIG
			HARV				1712	1713	2				IIIB
			HARV				1754		1				IIIB
			HARV				1807	1808	2				IIIG
			HARV				1833		2				IIIB
			HARV				2000	2002	2				IIIG
	2046	2400	CULG	2046	2400	1							IS
			HARV				2104	2106	1				IIIG,W
			CULG				2106	2343					IIIN,W
			HARV				2109	2113	2				IIIGG
			CULG	2109.5	2111.5	2	2109.5	2110.5	2				IIIG
			CULG				2112.5	2113.5	2	2112.5	2113.5	1	IIIG
			CULG				2230	2345	1				IS
			CULG				2300.5		2	2300	2301	2	IIIG
10	0000	0746	CULG	0000	0145	1							IS
			CULG				0052	0734					IIIN,W
			CULG				0054	0150					IS,W
			CULG	0145	0707								IS,W
			CULG	0145	0146	2	0145	0146	1				IIIG
			CULG				0155	0156.5	2	0156	0156.5	1	IIIG
			CULG				0203.5	0204	2	0203.5	0204	1	IIIG
			CULG							0230	0231	2	IIIB
			CULG				0405		1	0405	0405.5	1	IIIG
			CULG	0431	0432	1	0429	0432	3	0429	0432	3	IIIGG,V
			CULG				0435	0436.5	1	0436	0437	1	IIIG
			CULG				0438	0439	1	0438.5	0439	1	IIIG
			CULG	0707	0746	1							IS

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10	0715	1151	WEIS				0719	1149	2				IIIN
			WEIS				0725	1151	2				IN
			CULG				0734	0746					IIIS,W
			CULG				0735	0738	2				IIIGG
	0715	1100	DWIN	0735.0	0736.5	1							
			CULG				0737	0745	1				N,RS,DP
	0738	1238	BLEN				0738 E	1238 D	3				I NS,DC
	1400	2345	HARV				1400	2226	2				IN
			HARV				1512		2				IIIG
			HARV				1543	1544	2				IIIG
			HARV				1544	1551	2			II	
			HARV				1558		2				IIIG
			HARV				1602		2				IIIB
			HARV				1634		2				IIIB
			HARV	1754	1755	2	1754	1807	2				IIIGG
			HARV	1837	1838	2							IIIG
			HARV				1854	1859	2				IIIG
			HARV	2014	2015	2	2014	2020	2				IIIG
			HARV	2026	2029	2	2026	2029	3				IIIGG
			CULG				2046	2400					IIIS,W
	2046	2400	CULG	2046	2145	1	2046	2240	3				IS,C,DC
			CULG				2050	2400	1				IIIN
			CULG				2116.5	2129	3			II	
			HARV				2135	2138	2				IIIG
			CULG				2135.5	2136.5	3	2135.5	2136	3	IIIB,V
			PALE				2135.5	2140.0	2				V
			CULG				2137	2140	2	2137	2139.5	1	IIIG,V
			CULG	2145	2400	1							IS
			HARV				2157		1				IIIB
			CULG							2221	2400	1	IIIN
			CULG				2240	2400	2				IS,DC
			HARV				2316	2317	2				IIIG
			PALE				2316.1	2318.2	2				V
			LEAR				2316.4	2318.1	2				CONT
			CULG				2316.5	2318.5	3	2316.5	2318.5	3	IIIG,V
			LEAR				2329.8	2353.8	3				S
			CULG	2330	2332	2	2330	2332.5	3	2330	2332.5	3	IIIGG,V
			HARV	2330	2331	1	2330	2338	2				IIIGG
			PALE				2330.0	2333.2	3				V
			CULG	2332.5	2333	1	2332.5	2333.5	2	2332.5	2333	1	IIIG
			CULG	2334.5	2335	1	2334.5	2335	2				IIIG
			CULG				2337	2338.5	2				IIIGG
			LEAR				2342.1	2348.6	1			II	
			CULG				2343.5	2349	1			II	
11	0000	0746	CULG				0000	0203					IIIS,W
			CULG	0000	0746	1	0000	0346	1				IS,DC
			LEAR				0019.2	0028.0	3				CONT
			PALE				0019.4	0028.0	3				V
			CULG	0019.5	0021	2	0019.5	0022.5	3	0019.5	0022.5	3	IIIGG,V
			CULG	0022.5	0023	2							IIIG,RS
			CULG	0023	0411	1	0023	0606	2	0023	0638	2	IIIG,N
			LEAR				0118.9	0119.8	2				CONT
			CULG				0203	0606	1				IIIS
			CULG				0346	0746	2				IS,DC
			CULG				0348.5		1				DP
			CULG	0355.5	0356	2							DCIM
			LEAR				0451.6	0452.3	2				CONT
			CULG	0547.5		2							IIIB,RS
			CULG				0606	0746	2				IIIS
			LEAR				0632.5	0634.0	2				CONT
			WEIS				0719	1558	2				IN
	0718	1600	WEIS				0719	1559	2				IIIN
			LEAR				0745.8	0747.0	2				CONT
	0815	1610	DWIN										
	1038	1547	BLEN				1038 E	1547 D	3				I NS,DC
			BLEN				1124.9	1130.4	3				IIIGG
	1400	2345	HARV				1400	2345	2				IN
			HARV				1406	1407	1				IIIG
			HARV				1458	1526	2				IIIGG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11			HARV				1532	1545	2				IIIGG
			HARV				1617	1634	2				IIIGG
			HARV				1709	1747	3				IIIG,N
			PALE				1738.0	1747.1	1				CONT
			HARV				1757		1				IIIB
			HARV				1819		1				IIIB,W
			HARV				1827	1832	1				IIIG
			HARV				1847	1920	3				IIIGG
			PALE				1902.5	1903.5	2				V
			HARV				1928	1946	2				IIIGG
			PALE				1939.9	1940.5	2				III
			HARV				2001	2022	2				IIIGG
			HARV				2035	2046	3				IIIGG,V
			SGMR				2037.0	2038.5	3				CONT
			HARV				2043	2051	2			II	
			CULG	2046	2400	1	2046	2400	2				IS,DC
	2046	2400	CULG				2046	2058	2			II	
			CULG				2047	2400					IIIS,W
			CULG				2121	2353	1				IIIN
			CULG				2138.5	2140	2	2138.5	2139	2	IIIG
			HARV				2139	2141	2				IIIG
			HARV				2148		1				IIIB
			CULG				2156	2157.5	2	2156	2157.5	2	IIIG
			CULG							2159	2302	1	IIIN
			CULG				2219.5	2220	2				IIIB
			CULG				2221	2222	2				IIIB
			HARV				2238		1				IIIB
			CULG							2322	2353	2	IIIS
12	0000	0020	CULG	0000	0020	1	0000	0020	2				IS,DC
			CULG				0017	0020					IIIN,W
	0140	0746	CULG				0140	0546					IIIS,W
			CULG	0140	0746	1							IS,C
			CULG				0140	0746	2				IS,DC
			CULG							0152	0607	1	IIIN
			CULG				0229	0546	1				IIIN
			CULG				0239		2	0239		2	IIIB
			CULG				0305		2	0305		2	IIIB
			CULG				0311.5	0312.5	2	0311.5	0312.5	2	IIIG
			CULG				0417	0418	2	0417	0418	2	IIIG
			CULG	0504.5	0506	1	0504.5	0506	2	0504.5	0505.5	2	IIIG
			LEAR				0504.8	0508.0	2				CONT
			CULG	0507.5		2	0507.5		3	0507.5		1	IIIB
			CULG				0546	0706	2				IIIS
			CULG	0550	0551	1	0550	0552	3	0550.5	0552	3	IIIG,V
			LEAR				0550.5	0552.1	3				CONT
			LEAR				0600.8	0608.0	2				CONT
			CULG	0605.5		1	0605.5	0606.5	3				IIIG
			CULG				0706	0724	3				IIIS
	0711	1049	WEIS				0714	0900	2				IIIN
			CULG				0724	0746	1				IIIS
	1201	1602	WEIS				0729	1602	2				IN
	0732	1548	BLEN				0732 E	0950	3				I,C,DC
			CULG	0733		2	0732.5	0733.5	3				IIIG,V
			CULG				0737.5	0738.5	3				IIIG,V
			BLEN				0810.2	0810.4	3				IIIG
			BLEN				0824.5	0848.2	3				IIIGG
			BLEN				0915.7	0916.3	3				IIIGG
			BLEN				1034.0	1034.4	1				IIIG
			BLEN				1103.5	1548 D	2				I,DC,NS
			BLEN				1145.6	1145.9	2				IIIG
			BLEN				1222.7	1224.5	2				IIIG
	1400	2345	HARV				1437	2345	2				IN
			HARV				1602	1616	2				IIIGG
			HARV				1651	1652	2				IIIG
			HARV				1705	1731	3				IIIGG
			HARV	1723	1731	2							IIIG
			HARV				1747		1				IIIB
			HARV				1753		2				IIIB
			HARV				1917	1928	2				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			HARV				1928	1930	2				IIIG
			HARV				2001	2009	2				IIIG
			HARV				2021	2022	2				IIIG
			HARV				2038	2039	2				IIIG
			CULG				2046	2400	2				IS,DC
	2046	2400	CULG	2046	2400	1							IS
			CULG				2046	2400					IIIS,W
			HARV				2051	2057	2				IIIG
			PALE				2051.8	2057.8	2				CONT
			CULG				2052	2400	2				IIIN
			CULG				2055.5		3				IIIB
			CULG	2115	2115.5	1	2115	2116.5	3	2115	2116	2	IIIG,V
			HARV				2115	2118	3				IIIG,V
			HARV				2122	2134	3				IIIGG
			PALE				2124.0	2129.6	2				CONT
			CULG				2128	2400	3	2128	2400	3	IIIG,N
			HARV	2156	2157	2	2157	2159	2				IIIG
			CULG	2156.5	2157	2							IIIG,RS
			PALE				2156.7	2159.9	2				V
			CULG	2217.5	2400	2							IIIN
			HARV	2229	2234	3	2205	2237	3				IIIGG
			HARV				2244		2				IIIG
			CULG				2245.5	2345.5	1				N,RS,DP
			HARV				2247	2248	2				IIIB
			HARV				2252	2253	3				IIIG
			LEAR				2354.8	2355.3	2				V
13	0000	0746	CULG				0000	0725	2				IS,DC
			CULG				0000	0746	1				IIIS
			CULG	0000	0746	1							IS
			CULG	0000.5	0746	2	0008	0746	2	0008	0644	2	IIIG,N
			LEAR				0016.7	0019.2	2				CONT
			CULG	0017.5	0018	1	0017.5	0019	3	0017.5	0019	2	IIIG,V
			CULG				0129	0129.5	3	0129	0129.5	3	IIIG
			LEAR				0138.5	0139.1	2				CONT
			CULG				0252	0642	3				IIIGG,N
			LEAR				0301.4	0305.0	3				CONT
			CULG				0725	0746	3				IS,DC
	1033	1550	BLEN				1033 E	1550 D	2				I,NS
	1032	1600	DWIN	1045.8	1046.7	1							IIIG
			BLEN	1046.5	1108.8	2	1046.5	1108.8	2				IIIGG,DCIM
			DWIN	1050.0	1050.7	2							IIIG
			DWIN	1058.9	1059.4	2							IIIG
			BLEN	1123.7	1123.8	2							DCIM
			DWIN	1123.7	1124.2	2							IIIG
			BLEN	1204.8	1211.8	1							DCIM
			DWIN	1211.8	1211.9	2							IIIG
			BLEN	1223.5	1226.3	2	1223.5	1226.3	2				IIIGG
			BLEN	1324.6	1327.4	2							DCIM
	1032	1600	DWIN	1327.3	1327.4	2							IIIG
	1400	2345	HARV				1404	2345	2				IN
			HARV				1421	1422	1				IIIG
			HARV				1446	1447	1				IIIG
			HARV				1503		1				IIIB
			HARV	1509	1510	2							IIIG
			DWIN	1509.4	1510.3	2							IIIG
			BLEN	1509.5	1509.9	2							DCIM
			HARV				1551	1552	1				IIIG
			HARV				1558	1559	2				IIIGG
			HARV				1608	1609	2				IIIG
			HARV				1637		2				IIIG
			HARV				1648	1649	1				IIIB
			HARV				1702	1751	2				IIIS
			HARV				1831	1834	2				IIIGG
			PALE				1832.9	1833.6	2				V
			HARV				1838	1845	2				IIIGG
			HARV				1854	1858	3				IIIGG
			HARV				1902	1922	1				IIIGG
			HARV	1927	1928	2							IIIG
			HARV				1951	1956	2				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			HARV				2012	2024	2				IIIS
			HARV				2028	2101	2				IIIS
			CULG	2046	2400	1							IS
	2046	2400	CULG				2046	2148	2				IIIS
			CULG				2046	2400	2				IS,DC
			HARV				2104	2149	2				IIIS
			CULG							2128	2400	1	IIIN
			CULG				2148	2323	1				IIIS
			CULG				2149		3				IIIB
			HARV				2231		1				IIIB
			HARV				2238	2246	2				IIIGG
			LEAR				2248.8	2249.9	2				CONT
			HARV				2249		3				IIIG,V,U
			CULG				2249	2250	3	2249	2249.5	2	IIIG,V
			HARV				2309	2310	2				IIIG
			CULG				2323	2400	2				IIIS
			HARV				2324	2333	2				IIIGG
			LEAR				2346.5	2347.8	2				CONT
			CULG				2347	2347.5	3	2347	2347.5	1	IIIB,V
14			CULG	0000	0746	1							IS
			CULG				0000	0358	1	0000	0358	1	IIIS
	0000	0746	CULG				0000	0228	1				IS,DC
			CULG				0002	0358	2	0003	0358	2	IIIG,N
			CULG				0004		1				RS,DP
			CULG				0228	0451	2				IS,DC
			CULG				0358	0616	2	0358	0616	2	IIIS
			CULG				0429	0430	3	0429.5	0430.5	2	IIIG
			CULG				0451	0746	1				IS,DC
			LEAR				0510.1	0512.7	2				V
			CULG				0540	0542	3				IIIG
			CULG				0616	0746	1				IIIS
			CULG				0654	0746	2				IIIG,N
	0700	1550	DWIN										
			WEIS				0726	1603	2				IN,DC
	0742	1550	BLEN				0742 E	1550 D	2				I,DC
	0722	1604	WEIS				0806	1509	2				IIIN
	1400	2345	HARV				1400	2345	2				IN
			HARV				1508		2				IIIG
	2046	2400	CULG	2046	2325		2046	2400	1				IS
			CULG				2118	2221					IIIN,W
			CULG				2218	2219	1	2218	2219	1	IIIG
			CULG				2221.5	2222.5	2	2221.5	2222.5	2	IIIG
			HARV				2222		2				IIIG
			CULG				2313.5	2314		2313.5	2314		IIIG,W
			CULG	2325	2400								IS,W
			LEAR				2346.4	2349.2	1				CONT
			PALE				2346.4	2351.6	2				CONT
			CULG				2346.5	2347	3	2346.5	2347	3	IIIG
			CULG				2348	2349	3	2348	2349	2	IIIG
			CULG				2350	2351.5	3	2350	2352	3	IIIG,V
15	0000	0746	CULG	0000	0105		0000	0146					IS,W
			CULG				0022	0506					IIIN,W
			CULG	0058.5	0102	1	0058.5	0103	3	0059	0103.5	3	IIIGG,V
			LEAR				0058.8	0103.2	3				CONT
			PALE				0058.8	0103.8	3				V
			CULG	0105	0550	1							IS
			CULG				0146	0459					IN,W
			CULG				0148	0148.5	2	0148	0148.5	2	IIIG
			CULG				0158.5	0159.5	1	0159	0159.5	1	IIIG
			CULG							0218	0506		IIIN,W
			CULG				0241.5		2	0241.5		2	IIIB
			CULG				0242.5		3	0242.5		3	IIIB
			CULG				0243.5	0244	1	0243.5	0244	1	IIIG
			CULG				0358	0358.5	1	0358	0358.5	1	IIIG
			LEAR				0439.2	0505.6	1				S
			CULG	0441.5	0442	2							IIIG,RS
			CULG				0459	0540	1				IS
			LEAR				0540.2	0540.8	1				CONT

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
15			CULG	0550	0746		0540	0746					IS,W
			CULG	0555.5	0556	2							IIIG,RS
	0707	1310	WEIS				0718	1156	1				IN
	0728	1550	BLEN				0728 E	1550 D	1				I,DC
			LEAR				0741.2	0756.1	2				S
	1318	1607	WEIS				0746	1405	2				IIIN
			LEAR				0902.3	0902.6	1				V
			LEAR				0905.0	1045.0	1				B
			BLEN	1201.2	1201.3	2							DCIM
	0700	1600	DWIN	1201.2	1201.4	2							IIIG
			BLEN	1328.2	1329.6	2							DCIM
			DWIN	1329.0	1331.8	1							IIIG
	1400	2345	HARV				1400	2345	2				IN
			BLEN	1435.9	1436.3	2							DCIM
			BLEN	1455.7	1456.0	2							DCIM
			DWIN	1455.7	1456.1	2							IIIG
			HARV	1456	1458	1							IIIG
			DWIN	1458.0		2							IIIB
			HARV				1603		1				IIIB
			HARV				1721	1723	3				IIIG
			HARV				1734	1735	3				IIIG
			PALE				1734.3	1744.4	1				CONT
			HARV				1740	1741	3				IIIG
			HARV				1744	1745	3				IIIG
			HARV				1902	1906	1				IIIG
			HARV				1930	1936	1				IIIG
			HARV				2013	2017	2				IIIGG
			HARV				2020	2024	2				IIIG
			HARV				2042		1				IIIG
			CULG	2046	2135	1							IS
			HARV				2046	2048	2				IIIG
	2046	2400	CULG				2046	2048	1				IIIG
			CULG				2105	2300	2				IS
			HARV	2105	2117	2							IIIG
			CULG				2106.5	2134	2	2110	2127	1	IIIS
			HARV				2110	2129	2				IIIGG
			CULG	2113	2135								IV,W
			CULG				2115	2119	3	2115	2119.5	1	IIIGG
			CULG				2120	2127	1				POSSII
			CULG				2121	2300	2			IV	
			CULG				2134	2313					IIIN,W
			CULG	2235	2400								IS,W
			CULG				2300	2400	1				IS
16	0000	0746	CULG	0000	0315		0000	0255					IS,W
			CULG				0036	0248					IIIN,W
			CULG				0108	0108.5	2	0108	0108.5	1	IIIG
			CULG				0119.5	0120	1				IIIG
			CULG				0241	0242	2	0241	0242	1	IIIG
			LEAR				0241.1	0242.9	2				CONT
			CULG				0255	0515					IN,W
			CULG							0304.5	0305	1	IIIB
			CULG	0315	0550								IN,W
			CULG							0350.5	0351		IIIG,W
			LEAR				0738.0	0745.8	1			II	
			CULG				0738.5	0746					II,W
	0745	0930	BLEN										
			LEAR				0913.0	0914.8	2				CONT
	0704	1609	WEIS				0913.8	0914.7	2				IIIG
			WEIS				0948.8	0951.8	2				IIIG
			WEIS				1211.9	1212.2	2				IIIG
	0700	1600	DWIN	1445.5	1447.2	2							IIIGG
	1035	1550	BLEN	1445.5	1446.8	1							DCIM
	1400	2345	HARV	1446	1447	2							IIIG
			HARV				2046	2047	1				IIIB
	2046	2400	CULG				2046.5		1				IIIB
			CULG				2053	2054					IIIG,W
			CULG	2120	2146								IN,W
			HARV	2224	2226	1							IIIG
			CULG	2225.5	2226.5	1							SLOW DRIFT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			CULG				2238.5		1	2238.5		2	IIIB
			CULG				2309	2310	1				I
17	0000	0746	CULG	0028	0158								IN,W
			CULG	0158	0255								IS,W
			LEAR				0421.8	0422.3	1				V
			CULG				0422						IIIB,W
			CULG	0438	0500								IS,W
			CULG				0524.5						IIIB,W
	0700	1600	DWIN										
	0702	1525	WEIS				0711.0	0711.8	2				IIIG
			WEIS				0734.1	0734.7	2				IIIG
	0745	1550	BLEN										
			WEIS				1049.6	1049.7	1				IIIG
	1400	2345	HARV				1400	2322	2				IN
			WEIS				1439.2	1441.6	1				IIIG
	1531	1611	WEIS										
			HARV				1612		1				IIIG
			HARV				1706		2				IIIB
			HARV				1739		1				IIIB
			HARV				1917		2				IIIB
	2046	2400	CULG	2046	2249								IS,W
			CULG	2133	2133.5	1							IIIG
			CULG	2330	2332								I,W
			CULG				2347						IIIB,W
18	0000	0746	CULG	0142	0746								IN,W
			LEAR				0716.4	0717.5	1				CONT
	0745	1550	BLEN										
			LEAR				0916.5	0916.6	1				III
	0701	1612	WEIS				1008.0	1008.2	1				IIIB
			WEIS				1226.7	1227.8	1				IIIG
	1400	2345	HARV				1553		1				I
	2046	2400	CULG										
19	0000	0746	CULG										
	0650	1325	DWIN										
	0745	1550	BLEN										
	0700	1614	WEIS				0809.8	0810.1	1				IIIB
			WEIS				0820.6	0822.4	2				IIIG
			WEIS				0945.3	0948.5	2			II	HARM
	1400	2400	HARV	1743		2	1743		2				IIIG
			HARV				2251		1				IIIG,W
	2046	2400	CULG	2251	2252	1							I
20	0000	0422	CULG				0020.5	0021					IIIG,W
			LEAR				0226.3	0226.7	1				V
	0610	0739	CULG										
	0700	0750	WEIS										
	0745	1550	BLEN										
	0750	1500	DWIN										
			LEAR				0856.1	0856.7	1				CONT
	0755	1616	WEIS				0856.2	0856.6	1				IIIG
	1348	2345	HARV										
	2047	2400	CULG				2204.5	2205					IIIG,W
21	0000	0746	CULG										
	0650	1200	DWIN										
			LEAR				0713.6	0713.7	1				III
	0655	1617	WEIS				0713.6	0713.7	2				IIIG
	0740	1530	BLEN										
			WEIS				1016.1	1016.9	2				IIIG
	2046	2400	CULG				2153	2154	1	2153	2154	1	IIIG
	1348	2345	HARV				2153	2155	1				IIIG,W
			CULG				2155.5						IIIB,W
			CULG				2245	2317					IN,W
			CULG				2317	2347					IS,W
22	0653	0903	WEIS										
	0000	0746	CULG				0741	0742					UNCLF,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1980

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
22			CULG				0745.5						IIIB,W
	1015	1550	BLEN										
	0907	1619	WEIS				1121.2	1121.4	1				IIIG
			WEIS				1124.3	1125.7	2				IIIG
			WEIS				1142.9	1143.2	1				IIIB
			WEIS				1146.6	1146.9	2				IIIG
			WEIS				1157.4	1157.5	1				IIIB
			WEIS				1206.4	1208.2	2				IIIG
	1240	1610	DWIN										
			WEIS				1327.8	1328.1	1				IIIG
	1348	2345	HARV				1718	1720	2				IIIG,V
			HARV				1744		1				IIIG,W
			HARV				1946	1947	1				IIIG
			HARV				1956	1957	2				IIIG,V,U
			HARV				2140	2144	3	2143	2144	2	IIIG,V,U
			PALE				2140.2	2144.1	2				CONT
	2046	2400	CULG				2140.5		1				IIIB
			CULG				2141.5	2144	3	2142.5	2144	2	IIIG,V
			CULG				2147	2153	1				POSSII
			CULG				2214	2214.5	1	2214	2214.5	1	UNCLF
			CULG				2243						IIIB,W
			LEAR				2310.2	2311.1	1				CONT
			CULG				2310.5	2311		2310.5	2312		UNCLF,W
23	0000	0746	CULG				0031	0035.5	2	0032	0035.5	2	IIIGG,V
			LEAR				0031.9	0035.8	2				CONT
			PALE				0032.0	0036.6	1				CONT
			LEAR				0116.2	0118.1	2				CONT
			CULG				0116.5	0117.5	2	0116.5	0117.5	1	IIIG
			PALE				0116.9	0117.9	1				V
			LEAR				0247.3	0249.1	1				CONT
			CULG							0248	0249		IIIG,W
			CULG				0445.5						IIIB,W
			LEAR				0515.6	0515.9	1				V
			CULG	0657.5	0658	1							IIIG
	0725	1550	BLEN										
	0645	1610	DWIN	0842.9	0843.2	1							IIIG
	0651	1621	WEIS				1007.6	1007.7	1				IIIB
	2046	2400	CULG				2146.5		1				IIIB
			CULG				2254.5						IIIB,W
			LEAR				2256.5	2257.0	1				CONT
			CULG				2256.5	2257	2	2256.5	2257	2	IIIG
	1344	2400	HARV				2257		1				IIIG,W
			CULG				2304	2306					IIIG,W
			CULG				2342	2342.5	1				IIIG
			LEAR				2343.9	2344.1	1				III
			CULG				2344			2344			IIIB,W
24			LEAR				0044.4	0047.0	1				CONT
	0000	0745	CULG				0044.5		1				IIIB
			CULG				0046.5		1				IIIB
			CULG				0138		1				IIIB
			CULG				0140	0140.5		0140.5	0141		IIIG,W
			CULG				0142.5	0144.5	3	0142.5	0145.5	3	IIIG,V
			LEAR				0159.7	0226.4	1				S
			CULG				0202	0202.5	1				IIIG
			CULG				0226		1				IIIB
			CULG				0507	0509	3	0507.5	0509	2	IIIG,V
			CULG				0513	0523	1			II	
			LEAR				0515.5	0526.4	1				S
			CULG				0526		1				IIIB
			LEAR				0600.5	0601.2	1				CONT
	0645	1700	DWIN										
			CULG				0646.5	0648.5	1				IIIG
			LEAR				0647.5	0704.8	1				S
			CULG				0651	0651.5	1				IIIG
			CULG				0704.5						IIIB,W
			LEAR				0752.5	1040.0	1				B
	0648	0801	WEIS				0752.6	0752.8	1				IIIB
			LEAR				0803.9	0804.2	2				V

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			WEIS				0804.9	0805.0	1				IIIB
			WEIS				0830.2	0831.4	2				IIIG
			WEIS				0833.6	0834.3	2				IIIG
			WEIS				0916.0	0920.3	2				IIIG
			LEAR				0917.8	0920.2	2				CONT
	0725	1550	BLEN				0918.3	0919.5	2				IIIG
	1011	1216	WEIS				1032.5	1033.5	2				IIIG
			WEIS				1043.9	1044.0	2				IIIB
			BLEN	1046.3	1046.5	1							DCIM
			WEIS				1046.6	1046.8	1				IIIG
			WEIS				1111.9	1112.1	1				IIIG
			WEIS				1119.1	1121.6	3				IIIG
			WEIS				1150.5	1150.7	2				IIIB
			WEIS				1213.6	1213.7	1				IIIB
	1344	2400	HARV				1450	1453	1				IIIG
			HARV				1511	1512	2				IIIG
			HARV				1728		2				IIIG
			HARV				1735	1738	2	1737	1738	2	IIIGG,V,U
			HARV				1808	1810	2				IIIG
			HARV				1814	1816	3	1816		3	IIIG,V
			PALE				1815.8	1816.0	2				V
			HARV				1827		1				IIIB
			HARV				1831		1				IIIB
			HARV				1932	1934	1	1932	1934	1	IIIG
			HARV				2002	2003	2				IIIG
	2045	2400	CULG										
			CULG				2204						IIIB,W
			CULG				2229						IIIB,W
			CULG				2333.5	2334					IIIG,W,U
			HARV	2334		1	2334		1				IIIG,U
25	0000	0745	CULG										
			LEAR				0131.6	0132.2	1				CONT
			LEAR				0453.8	0454.5	1				CONT
			CULG				0509						IIIB,W
			LEAR				0614.3	0618.0	1				CONT
			LEAR				0721.1	0723.6	1				CONT
			CULG				0721.5						IIIB,W
	0734	1624	WEIS				0842.7	0842.9	1				IIIB
			WEIS				0844.7	0849.2	2				IIIG
			WEIS				1002.1	1002.2	1				IIIB
	0725	1550	BLEN				1102.5	1102.6	1				IIIB
			WEIS				1102.6	1102.7	1				U
			WEIS				1103.0	1103.4	2				IIIG
			WEIS				1120.5	1120.7	1				IIIB
			WEIS				1147.0	1147.2	1				IIIB
			WEIS				1331.2	1331.7	2				IIIG
			WEIS				1430.5	1430.6	2				IIIB
	1344	2345	HARV	1620	1622	2	1622		1				IIIG
	1040	1630	DWIN	1621.4	1621.6	2							IIIG
			WEIS	1621.5	1621.8	1							RS
			HARV				1622		1				IIIG
			HARV				1811		2				IIIG
			HARV				1823	1824	2				IIIG
			PALE				1936.9	1938.1	2				V
			HARV				1937		2				IIIG,U
			HARV				1952	1953	2				IIIG
	2046	2400	CULG				2145.5		1				IIIB
			CULG				2145.5	2147					IIIG,W
			HARV				2146	2147	2				IIIG
			HARV				2158	2159	1				IIIB
			CULG				2158.5						IIIB,W
26			LEAR				0219.5	0221.8	1				V
	0000	0745	CULG				0219.5	0221.5					IIIG,W
			CULG							0220	0221.5	1	IIIG,V
			CULG				0603.5						IIIB,W
	0645	0732	WEIS										
	0725	1555	BLEN	0838.3	0847.8	2							DCIM
			BLEN				0845.0	0845.5	2				IIIG,RS

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
26	0640	1630	DWIN	0846.3	0846.8	2							IIIG
	0738	1410	WEIS				0904.3	0904.6	2				IIIG
			LEAR				0904.3	0904.5	1				III
			BLEN	0939.3	0941.2	1							DCIM
			WEIS				1003.7	1004.7	2				IIIG
			BLEN	1032.0	1034.3	2							DCIM
			WEIS				1032.1	1034.3	3				IIIGG
			DWIN	1033.8	1034.2	1						IV	
			DWIN	1049.5	1050.0	2							IIIG
			DWIN	1051.5	1053.0	2							IIIG
			WEIS				1151.4	1153.4	3				IIIGG
			BLEN	1151.5	1153.0	2	1152.1	1153.0	3				DCIM,V
			WEIS				1207.1	1208.3	2				IIIG
			WEIS				1209.6	1210.1	1				IIIG
			WEIS				1338.8	1338.9	2				IIIB
			WEIS				1408.7	1408.9	2				IIIB
	1344	2345	HARV				1409		2				IIIB
	1421	1626	WEIS										
			HARV	1448	1451	3	1448	1450	1				IIIG
			BLEN	1448.4	1450.8	2	1448.4	1450.2	2				IIIGG
			HARV				1754	1755	1				IIAB,W
			HARV				1827	1830	2				IIIGG
			HARV				1857		1				IIIB
	2045	2400	CULG				2158	2159					IIIG,W
27			LEAR				0125.3	0127.2	1				CONT
			LEAR				0253.6	0303.5	1				CONT
	0000	0745	CULG							0301.5	0302	1	IIIB
			CULG				0344.5	0357	2			II	
			CULG							0345	0405		SWF,W
			PALE				0345.3	0349.0	2			II	
			PALE				0349.0	0423.0	2			IV	
			CULG	0355	0359.5	1	0355	0405.5	1				IV,P
			LEAR				0355.9	0600.0	1				B
			LEAR				0729.8	0740.3	2				S
	0643	1627	WEIS				0730.2	0737.7	2				IIIGG
			CULG				0731	0738					IIIN,W
	0720	1630	DWIN	0913.0	0914.7	1							IIIG
			WEIS				1058.2	1058.4	1				IIIG
			WEIS				1140.0	1144.2	1			II	
	0725	1555	BLEN	1224.1	1224.4	1	1224.1	1224.4	1				IIIG
			BLEN	1248.5	1248.6	2							IIIB
			WEIS				1325.3	1327.2	2				IIIG
	2045	2400	CULG										
	1344	2345	HARV				2153		1				IIIB
28			LEAR				0116.6	0120.5	1				CONT
	0000	0745	CULG				0117.5	0118					IIIG,W
			LEAR				0146.2	0150.9	1			II	
	0752	1447	WEIS				0947.7	0949.2	2				IIIG
			LEAR				0948.9	0949.2	1				V
			WEIS				1055.0	1055.3	1				IIIB
			WEIS				1123.9	1125.4	2				IIIG
	1102	1600	BLEN				1124.1	1124.7	2				IIIG
			WEIS				1150.4	1151.0	2				IIIG
			BLEN	1205.0	1214.3	3	1205.0	1214.3	3				DCIM,II
	0635	1630	DWIN	1205.0	1210.0	2						IV	
			WEIS				1205.5	1210.5	3			II	HARM
			WEIS				1205.5	1210.6	3				IIIG
			WEIS				1214.3	1223.3	2			II	HARM
	1344	2350	HARV										
			WEIS				1351.2	1353.6	1				IIIG
			WEIS				1410.7	1417.6	2				IIIGG
			HARV				1411		2				IIIG
	1453	1627	WEIS										
			BLEN	1554.3	1555.5	1	1554.3	1555.5	1				IIIG
			HARV				1838		1	1838		1	IIIG
			HARV				1840		2	1840		1	IIIB
			HARV				1853	1854	2	1853	1854	2	IIIG
	2045	2400	CULG				2319						UNCLF,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1980

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29	0000	0745	CULG	0015	0015.5								IIIG,W
			CULG	0025	0025.5								IIIG,W
			LEAR				0326.5	0336.8	1				S
			LEAR				0609.9	0611.5	1				CONT
			CULG				0610.5	0611					IIIG,W
	0630	1630	DWIN	0656.0	0657.0	1							IIIG
			CULG	0733	0734	1							IIIG
	0725	1600	BLEN	0733.2	0733.8	1							I
			BLEN	0838.2	0838.8	1							DCIM
	0640	1629	WEIS				1037.8	1039.2	1				IIIF
			BLEN	1443.7	1443.9	1							DCIM
			PALE				2025.8	2026.0	1				III
	1344	2350	HARV				2026		2	2026		1	IIIG
	2045	2400	CULG										

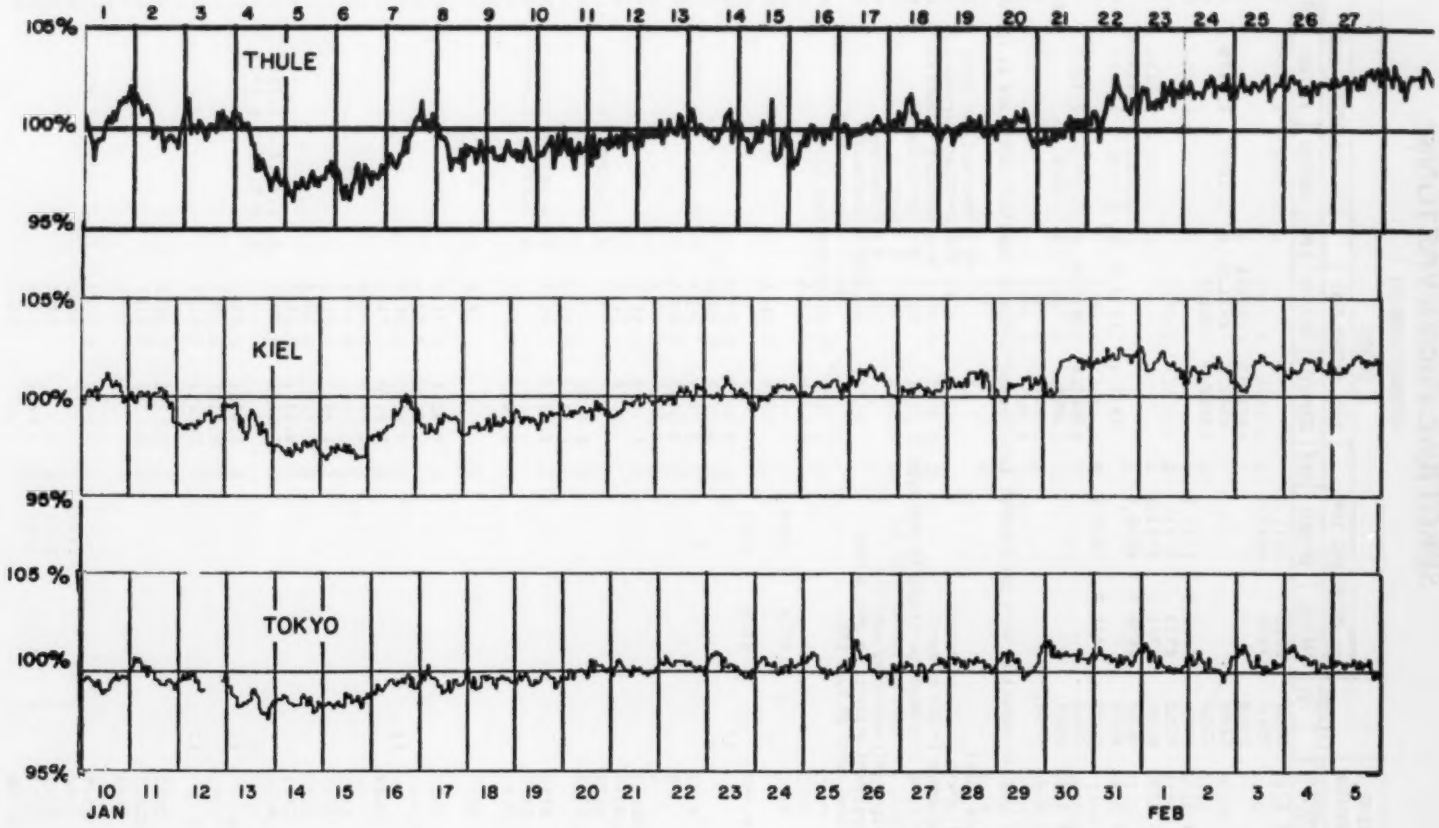
The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2002 (January - February 1980)

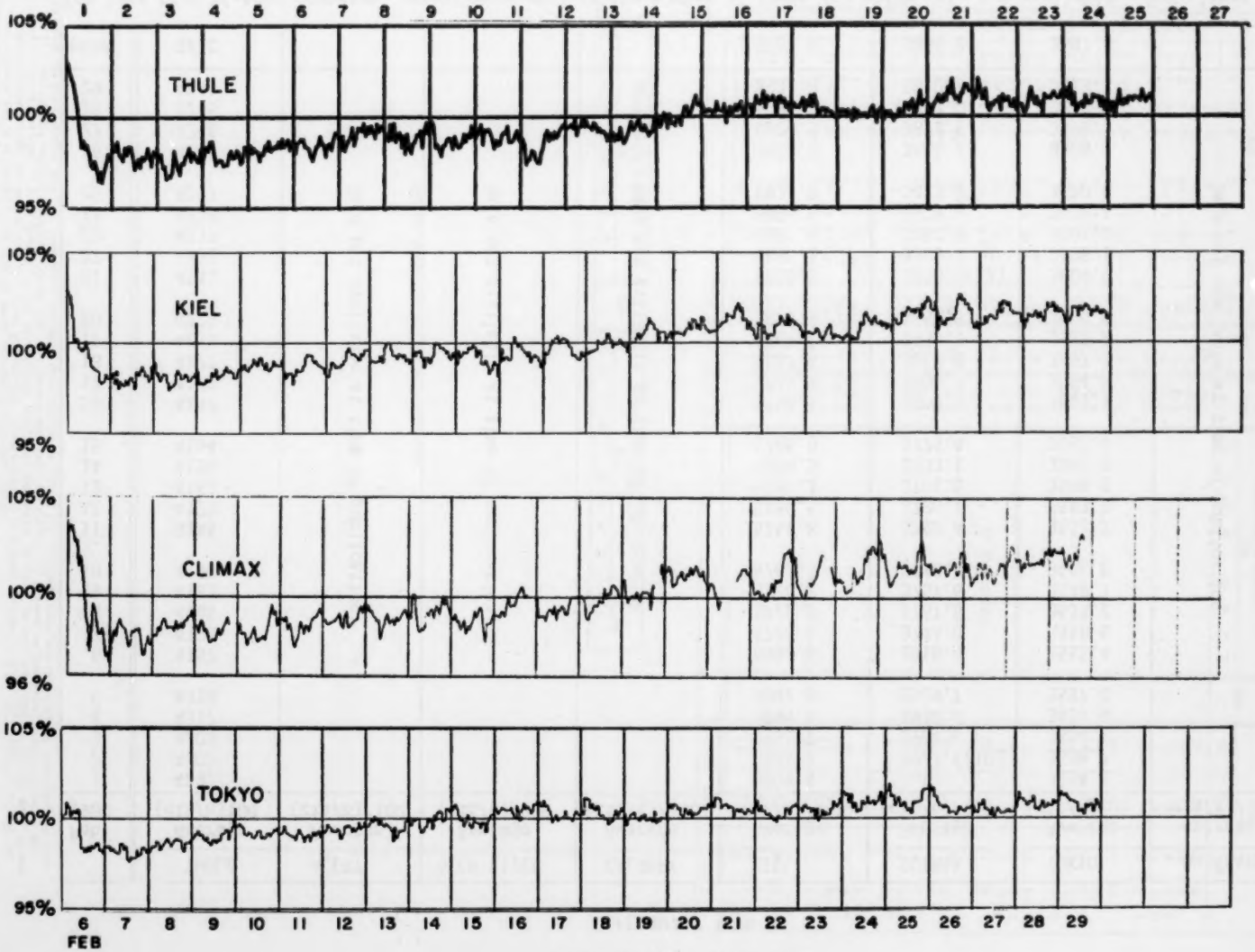


COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2003 (February 1980)

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2003 (February 1980)



COSMIC RAY INDICES

FEBRUARY 1980

Feb 1980	THULE Average (cts/h)100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)256	HUANCAYO Average (cts/h)/100
1	4297				6004.5	-----	3604.1	
2	4302				5984.2	3927.4(10)	3598.7	
3	4303				5981.7	3924.6	3604.7	
4	4317				5995.4	3934.4	3610.5	
5	4318				6002.8	3939.7	3597.0	
6	4157				5803.6	3818.4	3555.4	
7	4122				5720.8	3744.8	3518.6	
8	4105				5722.3	3767.5	3533.2	
9	4121				5728.8	3757.6	3549.7	
10	4140				5763.3	3758.8	3556.8	
11	4145				5754.6	3768.4	3551.7	
12	4170				5780.5	3780.1	3563.0	
13	4163				5791.3	3781.5	3568.6	
14	4156				5800.3	3793.1	3581.4	
15	4164				5785.0	3775.4	3582.4	
16	4147				5798.3	3809.8	3601.1	
17	4182				5815.9	3800.7	3594.2	
18	4177				5827.6	3818.0	3597.3	
19	4215				5864.2	3835.3	3585.2	
20	4225				5879.3	3865.8	3600.9	
21	4241				5905.5	3850.2(32)	3604.9	
22	4231				5885.3	3855.3	3596.1	
23	4217				5861.5	3861.9	3601.0	
24	4228				5886.5	3871.8	3618.4	
25	4257				5933.9	3883.5	3620.8	
26	4247				5923.5	3885.2	3608.9	
27	4248				5924.9	3873.5	3599.1	
28	4245				5925.8	3897.0	3612.7	
29	4246				5933.0	3910.2	3613.1	
MEAN	4210				5861.5	3836.2	3587.2	

Data not available at time of publication.

Data not available at time of publication.

Data not available at time of publication

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1980

Day		Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1		2	1+	2-	2+	2-	2-	4-	3+	18-	10	0.6										19	19	12	26
2		2+	3+	3	2+	2+	1+	1-	1-	16	9	0.5										15	12	20	6 K
3	Q2	1-	1	1	1-	0+	1-	0+	1	6-	3	0.1										6	4	6	4 CC
4	Q9	1-	1	2+	2	1-	0+	0+	0+	8-	4	0.1										6	9	12	3 CC
5	Q4	0	0	1-	1+	1	1	1	1-	6-	3	0.1										3	7	6	5 CK
6	D3	0	4-	4+	5-	5	5+	5+	2+	31-	33	1.3										40	66	39	67
7		2	2	3+	2-	3+	2	3+	3+	21	12	0.7										20	30	21	29
8	D5*	3+	4-	3+	3	4-	3+	2-	3	25	17	0.9										26	25	25	26
9		2-	3	3	2+	3-	3-	3	2	20+	11	0.7										19	22	19	23
10	Q5	1	2-	1+	1-	0+	1-	1-	1-	7	4	0.1										3	5	6	2 CK
11	Q8	0+	2+	1+	1	1	1	1	0+	8+	4	0.1										5	10	10	6 CC
12	Q3	1-	0	0+	1	1+	0+	0+	1	5	3	0.0										4	4	3	4 CC
13	Q1	0+	0	0	1-	1-	1-	1	1	4+	2	0.0										3	6	4	5 CK
14	D4*	1+	3+	3	5-	3+	4	3-	2-	24	18	1.0										26	43	41	29
15	D2	2+	3-	2	2	3-	3	6-	7	27+	33	1.3										47	44	16	75
16	D1	6	6-	6-	4+	4+	3	3	2+	34+	40	1.4										50	43	67	26
17	Q0	2	2-	2-	1-	2	1+	1+	1+	12	6	0.2										9	17	12	15 K
18		3	2-	3-	2	2	2	3-	3	19	10	0.6										20	21	16	24
19		3+	4+	3-	1-	1	0+	0+	1	14-	10	0.5										14	10	18	5 K
20		2	1	2-	2	1+	2	1	1+	12+	6	0.3										12	4	9	8 CC
21	Q7	2-	1-	1	1	1	1	1	2-	9	4	0.2										7	6	7	6 CC
22	Q6	1	1	0+	1+	1-	2-	1-	2-	8+	4	0.1										5	10	7	9 CC
23		1	0+	1+	2	3-	3+	3+	2+	16+	9	0.5										22	18	11	30
24		2+	2+	1+	2	2+	2+	0+	0+	13+	6	0.3										13	13	13	13 K
25		1	0+	1+	2+	3-	3	4	4+	19	13	0.8										27	23	9	41
26		4-	3	1+	3	3+	3	3-	2	22	14	0.8										21	30	28	23
27		1+	3	3+	3+	3+	3-	3	3	23	14	0.8										25	22	22	26
28		3-	3-	3-	3-	2-	1	2-	3	18	10	0.6										14	20	19	15
29		2+	2	1	2	2+	2	1+	1+	14+	7	0.3										12	9	8	13 CC
										Mean	11	0.51										17.0	19.0	18.1	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

DATA NOT AVAILABLE AT TIME OF PUBLICATION.

Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values>3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

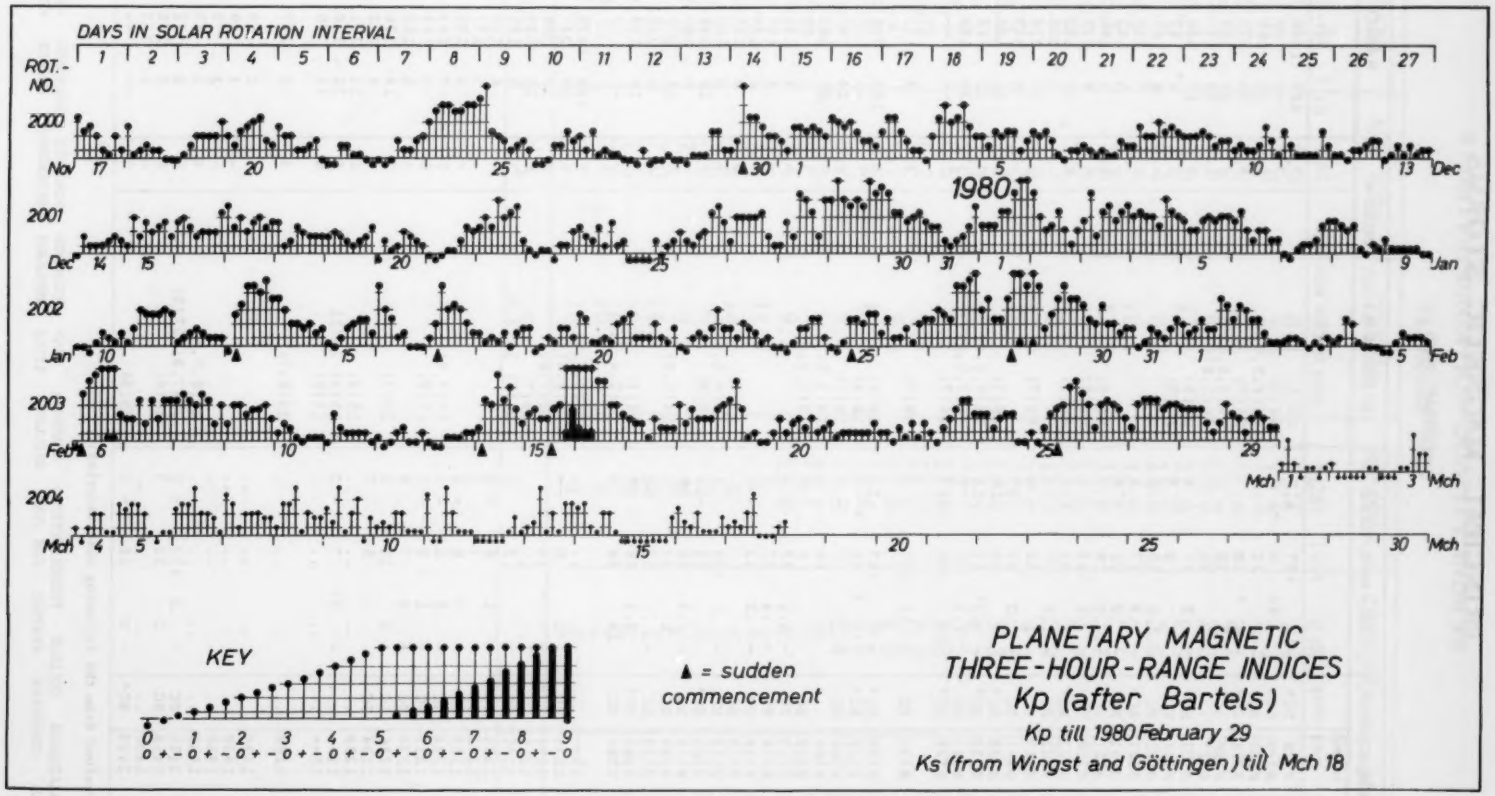
Numbers, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

DAILY AVERAGE INDICES Ap

DAY	1979 MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1980 JAN	FEB
1	12	33	18	5	7	16	10	10	16	9	24	10
2	20	36	14	6	4	11	5	7	12	11	12	9
3	13	54	6	4	14	10	9	13	10	9	18	3
4	27	47	7	6	9	16	10	9	10	16	16	4
5	13	52	7	4	9	8	17	6	2	7	12	3
6	30	12	6	34	22	18	15	36	3	6	8	33
7	7	12	11	26	27	10	6	32	12	4	5	12
8	7	12	8	14	9	7	6	37	14	10	6	17
9	15	9	14	15	6	6	5	23	19	7	3	11
10	54	12	7	14	6	7	9	17	6	5	3	4
11	18	6	19	10	4	10	14	10	10	5	11	4
12	6	15	9	7	11	18	8	8	7	4	4	3
13	7	11	8	8	16	76	8	12	35	4	23	2
14	3	15	11	7	14	7	10	6	13	4	9	18
15	8	18	11	10	15	4	8	8	3	9	6	33
16	11	16	5	16	11	5	14	8	12	10	9	40
17	21	11	3	14	14	8	11	4	8	13	13	6
18	7	6	11	6	15	11	64	3	4	7	4	10
19	11	6	24	6	11	35	6	5	7	6	4	10
20	6	2	13	8	18	42	22	6	10	4	6	6
21	4	21	13	15	9	22	23	10	6	4	6	4
22	45	45	36	24	6	12	6	14	2	15	5	4
23	12	23	11	19	6	5	7	6	4	3	5	9
24	15	14	27	10	5	13	15	12	24	7	5	6
25	21	126	34	9	3	22	19	14	15	2	7	13
26	26	12	25	20	17	15	19	8	4	10	6	14
27	18	27	17	10	23	12	15	6	4	12	24	14
28	39	31	11	4	10	10	16	9	2	16	27	10
29	68	47	30	7	24	77	15	11	4	32	26	7
30	16	26	10	10	9	15	18	5	15	20	10	
31	19		6		3	12		5		9	5	
MEAN	19	25	14	12	12	18	14	12	10	9	10	11

MEAN	19	25	14	12	12	18	14	12	10	9	10	11

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

FEBRUARY 1980

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	COMMENCEMENT hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	UT END HOUR
COL	64.6N	06	0320	SC*	+11	+37	+15	06(6)	7	405	1440	890	06	22
SIT	60.0N	06	0320	SC*	.5*	9	*- 6	* 06(6)	7	--	--	600	07	01
NEW	55.1N	06	0320	SC*	2	22	3	06(4,5,6,7)	5	44	168	148	10	08
WIT	54.2N	06	0321	SC*	- 6 *	38		06(7)	6	25	175	80	06	22
FRD	49.6N	06	0320	SC*	1	28	- 6	06(4,5,6,7)	5	22	159	35	09	23
IRK	41.0N	06	0327	..	5	25	5	06(5,6)	6	24	137	48	09	21
SJG	29.9N	06	0321	SC	.5	17	4	06(5)	5	14	116	52	07	09
HON	21.1N	06	0321	SC		5	3	06(3)	5	4	97	8	07	10
JAI	17.3N	06	0321	SC	- 1.2	16	- 6		-	6	167	44	08	02
SHL	14.6N	06	0321	SC	- .4	17	3		-	7	188	55	08	02
UJJ	13.5N	06	0321	SC	- .2	21	- 5		-	5	182	48	08	02
ABG	09.5N	06	0321	SC	- .5	19	- 7	06(3)	6	5	196	55	08	02
HYB	07.6N	06	0320	SC	- .6	+14	- 1	06(6)	6	6	229	48	08	18
GUA	04.0N	06	0321	SC*	1	33	-10	06(3)	6	10	190	40	07	09
ANN	01.5N	06	0321	SC	- 1.1	25	12		-	5	309	91	08	02
HUA	00.6S	06	0319	SC	1	38	6	06(7)	7	12	316	62	07	02
TRD	01.1S	06	0321	SC	- .2	23	25		-	4	345	148	08	02
HER	33.7S	06	0320	SC*	2	25	18	06(7)	5	31	168	122	06	22
GNA	43.2S	06	0320	SC*	- 3.2*	12	-13	* 06(5,6,7)	5	22	100	130	06	22
TOO	46.7S	06	0321	SC	1.3	27	5	06(3,5,6,7)	5	20	190	70	07	20
KGL	56.5S	06	0320	SC*	34	-46	-17	06(7)	7	--	--	--	06	23
HYB	07.6N	09	0338	SC	- .1	+17	- 2	09(7)	4	3	77	21	09	23
COL	64.6N	14	0308	SC*	- 8	+47	-12	14(6)	6	108	790	530	14	23
SIT	60.0N	14	0310	SC*	- 4 *	34	* 7	* 16(4)	7	--	--	690	16	20
FRD	49.6N	14	0309	SC	1	23	- 3	15(7)	6	24	147	120	16	20
IRK	41.0N	14	0309	..	6	19	3	14(4,6)	5	21	163	55	16	22
HON	21.1N	14	0310	SC		6	2	14(2,4,6)	3	3	85	6	15	05
JAI	17.3N	14	0310	SC	- 1.1	23	- 4		-	4	134	23	15	03
SHL	14.6N	14	0310	SC	- .4	27	3		-	4	147	36	15	03
UJJ	13.5N	14	0310	SC	- .2	32	- 6		-	4	137	16	15	03
ABG	09.5N	14	0310	SC	..	..	..	14(4)	6	3	149	32	15	03
HYB	07.6N	14	0310	SC	- .2	+24	- 3	14(4,5,6)	5	3	164	22	15	05
GUA	04.0N	14	0309	SC*	..	54	-15	15(8)	6	10	240	60	17	09
ANN	01.5N	14	0310	SC	- 1.5	46	16		-	5	205	50	15	03
HUA	00.6S	14	0308	SC	1	33	6	14(5,6)	6	14	259	38	14	23
TRD	01.1S	14	0310	SC	- .1	53	52		-	4	220	130	15	03
TOO	46.7S	14	0309	SC*	3.1	40	* 10	14(4)	5	19	120	70	14	20
KGL	56.5S	14	0309	SC*	20	20	5	14(2,4,5,6)	4	--	--	--	14	23
COL	64.6N	15	19--	..	..	..	..	16(3,4,5)	6	193	1430	820	16	22
NEW	55.1N	15	1234	SC	1	9	--	16(3,4)	6	39	247	480	17	01
WIT	54.2N	15	1234	SC*	- 3 *	14	*	15(7,8)	6	27	200	75	16	22
SJG	29.9N	15	1235	..	..	..	..	15(7)	6	11	144	51	18	22
HON	21.1N	15	1235	SC		2	1	15(7) 16(1,4)	5	5	189	42	17	08
JAI	17.3N	15	1234	SC	- .1	6	- 2		-	6	138	41	17	22
SHL	14.6N	15	1234	SC		5	2		-	5	177	25	17	22
UJJ	13.5N	15	1234	SC	- .2	6	- 2		-	6	139	32	17	22
ABG	09.5N	15	1234	SC	- .2	5	- 2	15(7,8)	5	7	143	41	17	22
HYB	07.6N	15	1235	SC	- .1	+ 8	- 1	15(8)	6	5	152	19	16	23
ANN	01.5N	15	1234	SC	- .4	7	4		-	5	182	49	17	22
HUA	00.6S	15	1236	SC	1	25	3	15(7)	7	14	376	61	16	22
TRD	01.1S	15	1234	SC		5	7		-	5	212	130	17	22
HER	33.7S	15	1200	..	..	..	..	15(8)	6	33	131	127	16	15
GNA	43.2S	15	12--	..	- .9*	7	- 2	* 15(8) 16(1)	5	22	170	130	16	22
TOO	46.7S	15	18--	..	..	..	..	15(8)	6	21	180	120	16	16
HYB	07.6N	22	2100	..	..	..	..	23(6,7)	4	2	127	27	24	03
JAI	17.3N	25	1430	..	..	..	..		-	2	69	19	27	01
SHL	14.6N	25	1430	..	..	..	..		-	3	69	20	27	01
UJJ	13.5N	25	1430	..	..	..	..		-	3	78	15	27	01
ABG	09.5N	25	1430	..	..	..	..	25(6,7,8)	4	3	83	29	27	01
HYB	07.6N	25	1429	SC	- .2	+12	- 1	25(7,8) 27(5)	4	5	92	28	27	23
HUA	00.6S	25	1430	SC	2	52	3	26(6)	6	8	275	38	26	23
TRD	01.1S	25	1430	..	..	..	..		-	1	123	61	27	01
KGL	56.5S	25	1429	SC*	- 8	16	- 5	25(8)	5	--	--	--	26	03

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GHANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD
IRKUTSK JAIPUR KERGUELEN NEWPORT SAN JUAN SHILLONG SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

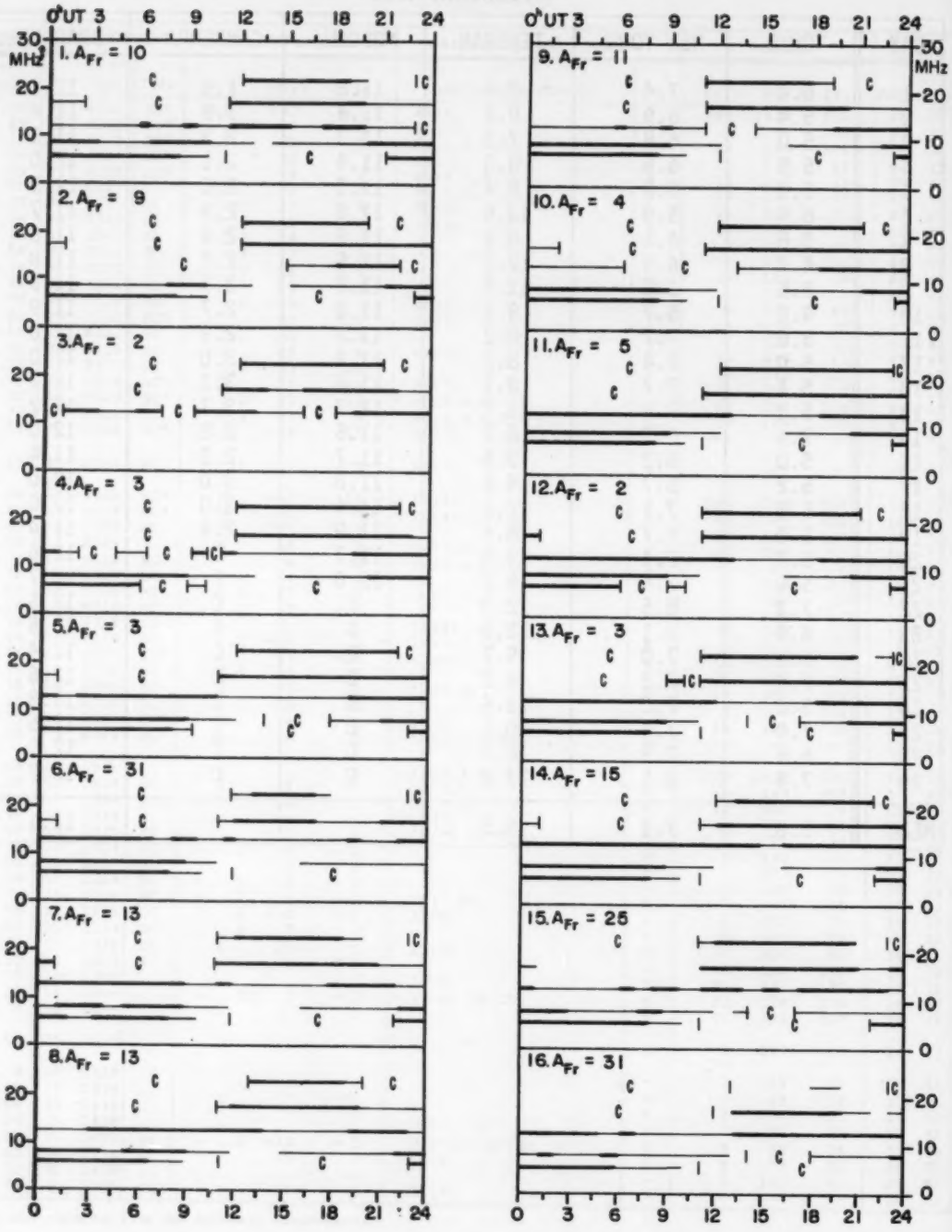
RADIO PROPAGATION QUALITY INDICES

FEBRUARY 1980

DAY	TOKYO	NEW YORK	TEHERAN	MOSCOW	CANBERRA	BRACKNELL
1	6.4	7.4	7.0	11.5	1.9	12.2
2	5.4	6.9	8.1	11.6	1.9	11.8
3	5.0	6.8	7.8	11.3	2.3	11.6
4	5.5	6.5	8.3	11.4	2.1	12.0
5	5.3	6.8	8.4	11.3	2.6	11.9
6	6.4	5.9	12.6	11.8	2.9	11.7
7	5.8	6.1	8.2	11.6	2.6	11.8
8	4.7	6.5	12.1	11.5	2.7	11.8
9	5.6	6.5	11.9	11.5	3.1	11.9
10	4.6	6.7	9.1	11.6	2.7	11.9
11	5.0	7.7	8.2	11.3	2.9	12.0
12	5.0	7.4	8.2	11.2	3.0	12.0
13	5.1	7.7	8.1	11.6	3.3	12.2
14	5.3	7.4	11.7	11.7	3.7	12.2
15	7.1	6.9	8.2	11.5	2.8	12.0
16	5.0	6.2	9.5	11.7	2.3	11.4
17	5.2	6.7	9.6	11.8	3.0	12.0
18	5.6	7.1	12.1	11.4	3.0	12.0
19	5.3	6.7	8.4	11.9	2.4	11.4
20	6.2	7.4	9.0	11.7	C	12.6
21	5.6	7.6	9.2	12.0	C	12.7
22	7.3	8.5	12.9	C	C	12.5
23	6.9	8.1	12.9	C	C	12.5
24	6.1	7.0	9.2	C	C	12.4
25	7.5	7.2	9.2	C	C	12.6
26	5.6	7.0	11.4	C	C	12.3
27	7.0	7.6	10.1	C	C	12.5
28	6.6	7.9	10.3	C	C	12.1
29	7.4	8.1	13.3	C	C	12.7
MEAN	5.8	7.1	9.8			12.1

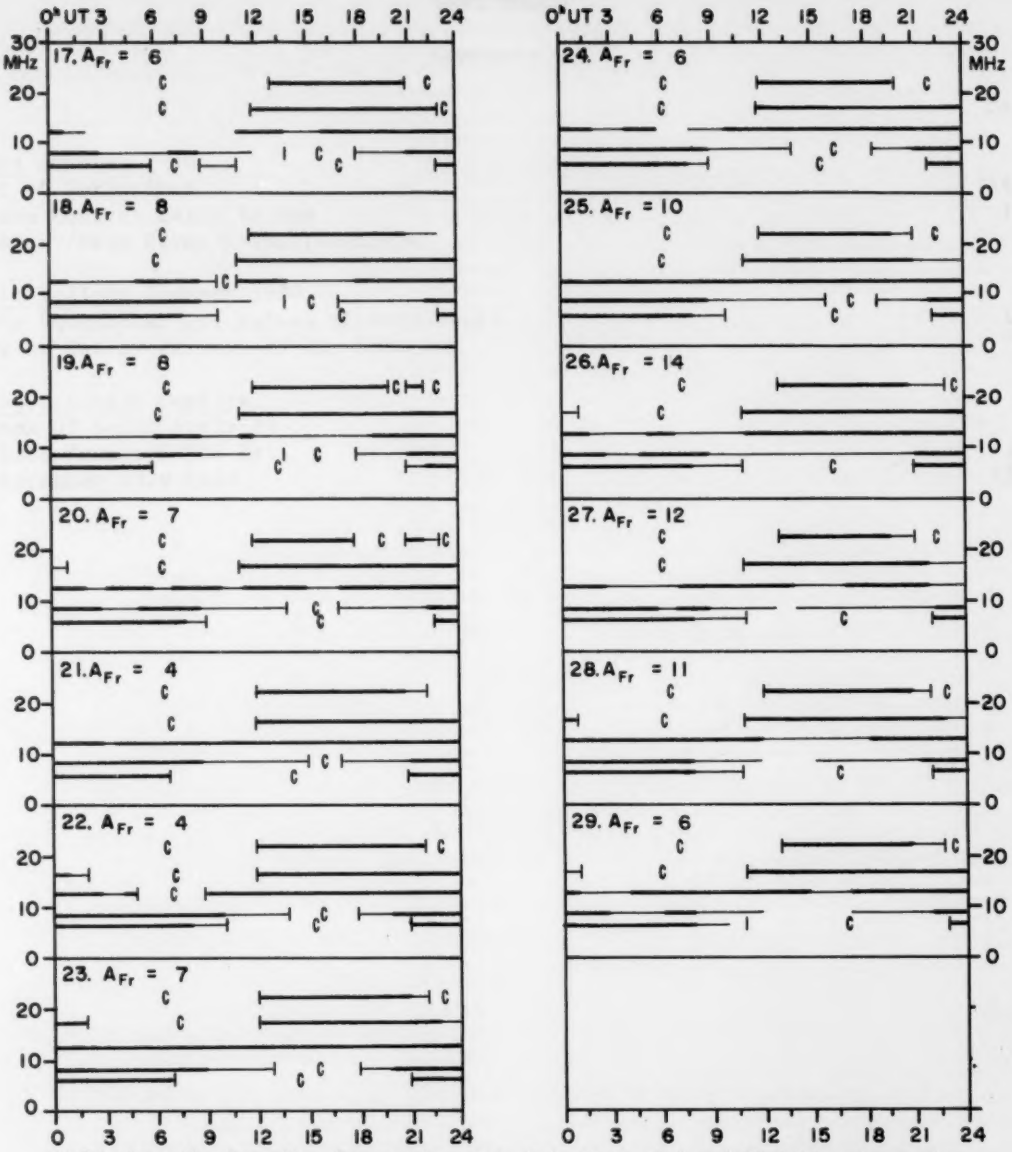
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1980



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1980



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow -New York circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

CD 428 Part I (Prompt)

LATE DATA

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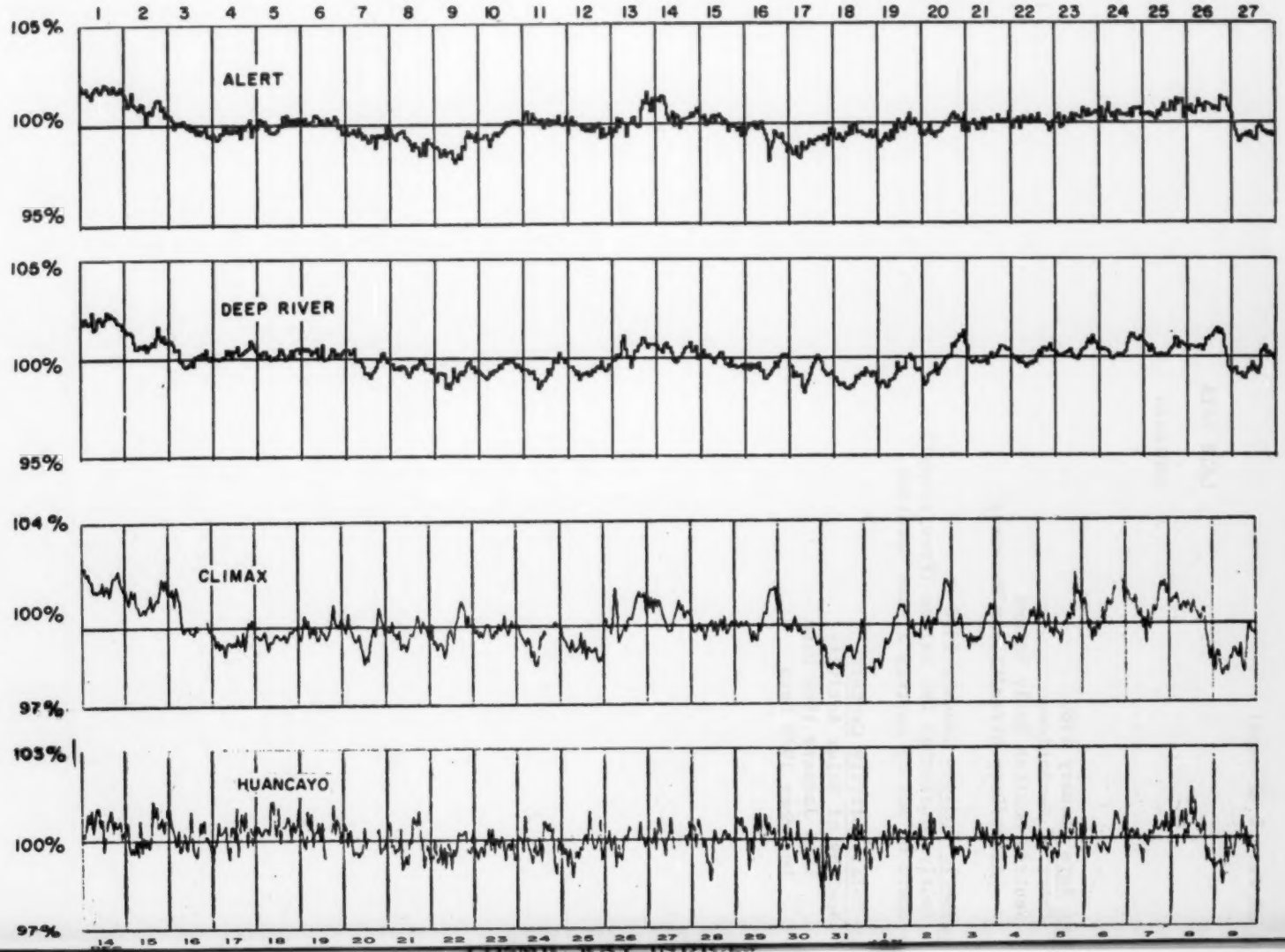
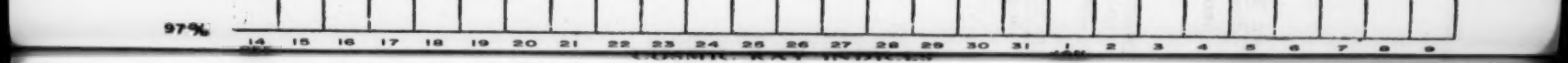
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 2001 (December 1979 - January 1980)



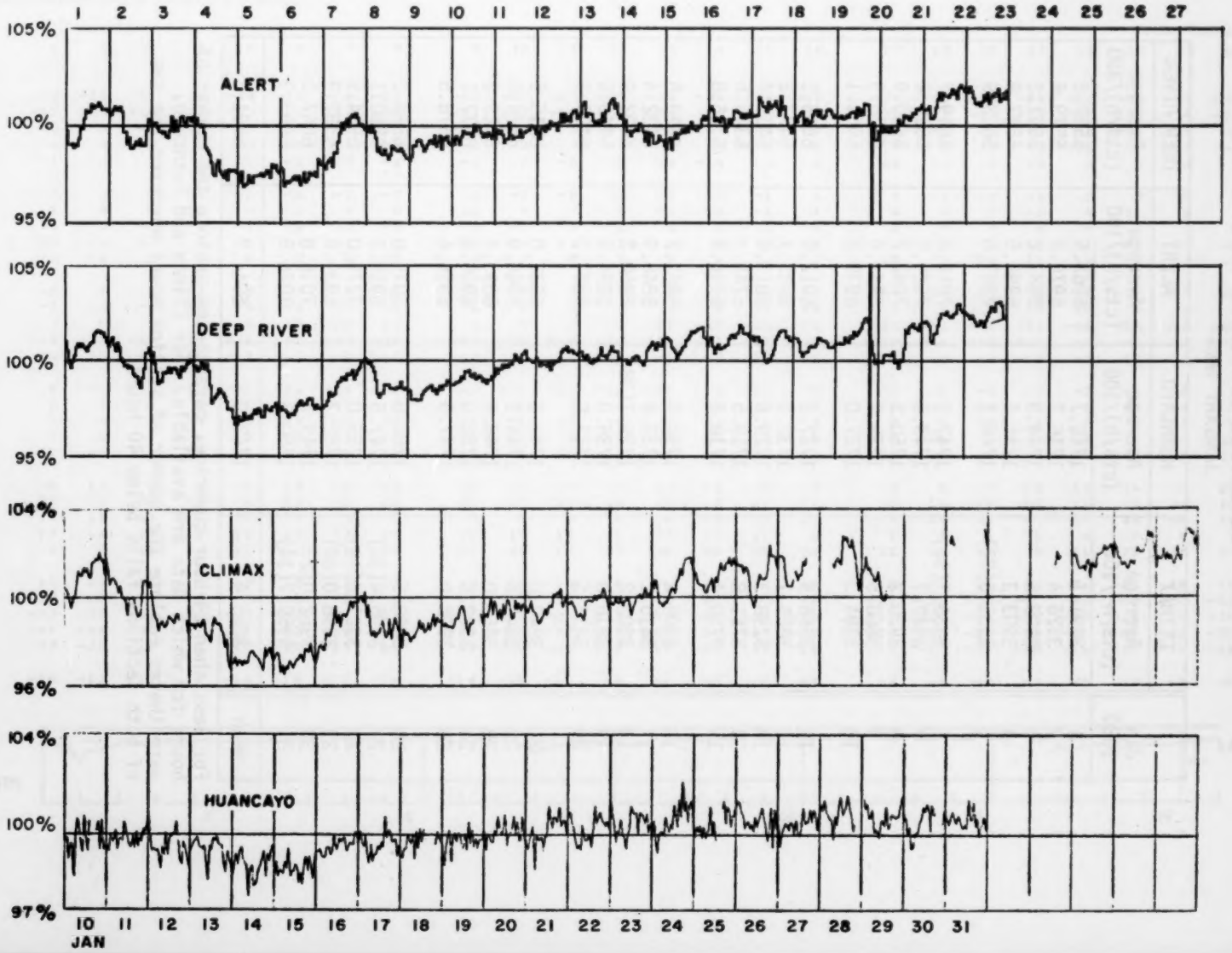
(Neutron Monitors)

Bartels Rotation 2002 (January 1980)



(Neutron Monitors)

Bartels Rotation 2002 (January 1980)



COSMIC RAY INDICES
(Neutron Monitors)
JANUARY 1980

Jan 1980	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300
1	3891.1	1745.7	6962.5	6537.8
2	3926.4	1746.7	6976.2	6579.6
3	3909.6	1744.3	6987.2	6591.8
4	3903.3	1744.4	6989.5	6587.9
5	3931.5(22)	1746.1	7007.0	6609.9
6	3933.7(36)	1747.3	7018.6	6619.2
7	3942.7	1749.0	7029.5	6615.2
8	3930.2	1750.5	7042.7	6630.9
9	3868.5	1739.7	6949.8	6558.9
10	3894.3	1737.0	6939.2	6561.1
11	3866.5	1737.6	6912.4	6505.2
12	3825.1	1732.3	6925.7	6477.2
13	3798.3	1729.6	6813.0	6411.4
14	3751.8	1719.5	6748.3	6325.6
15	3750.4	1716.8	6746.9	6346.8
16	3808.8	1732.5	6887.2	6429.8
17	3815.2	1733.9	6848.9	6432.4
18	3802.2	1735.7(38)	6860.2	6402.0
19	3816.0	1736.0	6894.5	6445.5
20	3836.5	1742.0	6897.3	6499.9
21	3840.8	1742.7	6937.0	6515.5
22	3846.6	1744.3	6969.9	6524.8
23	3853.0	1748.4	6893.9	6529.2
24	3882.5	1750.0	6905.8	6577.1
25	3895.0	1747.9	6956.4	6578.6
26	3898.5	1750.8	6975.0	6568.2
27	3905.4(36)	1747.5	6958.7	6560.1
28	3927.6(34)	1755.0	7275.0	6584.9
29	3896.0(36)	1752.7	6939.5	6553.9
30	3962.0(2)	1749.3	7016.8	6647.0
31	3952.7(14)	1750.3	7026.5	6663.3
MEAN	3865.4	1742.0	6944.9	6531.3

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

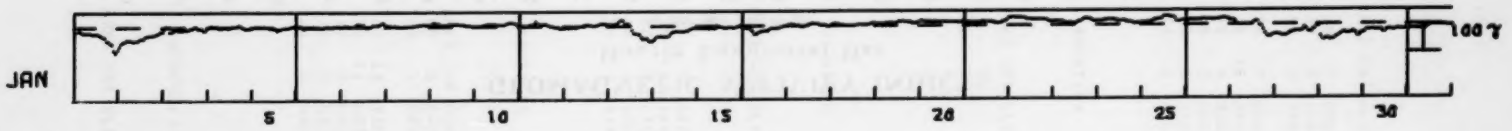
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

JANUARY 1980

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

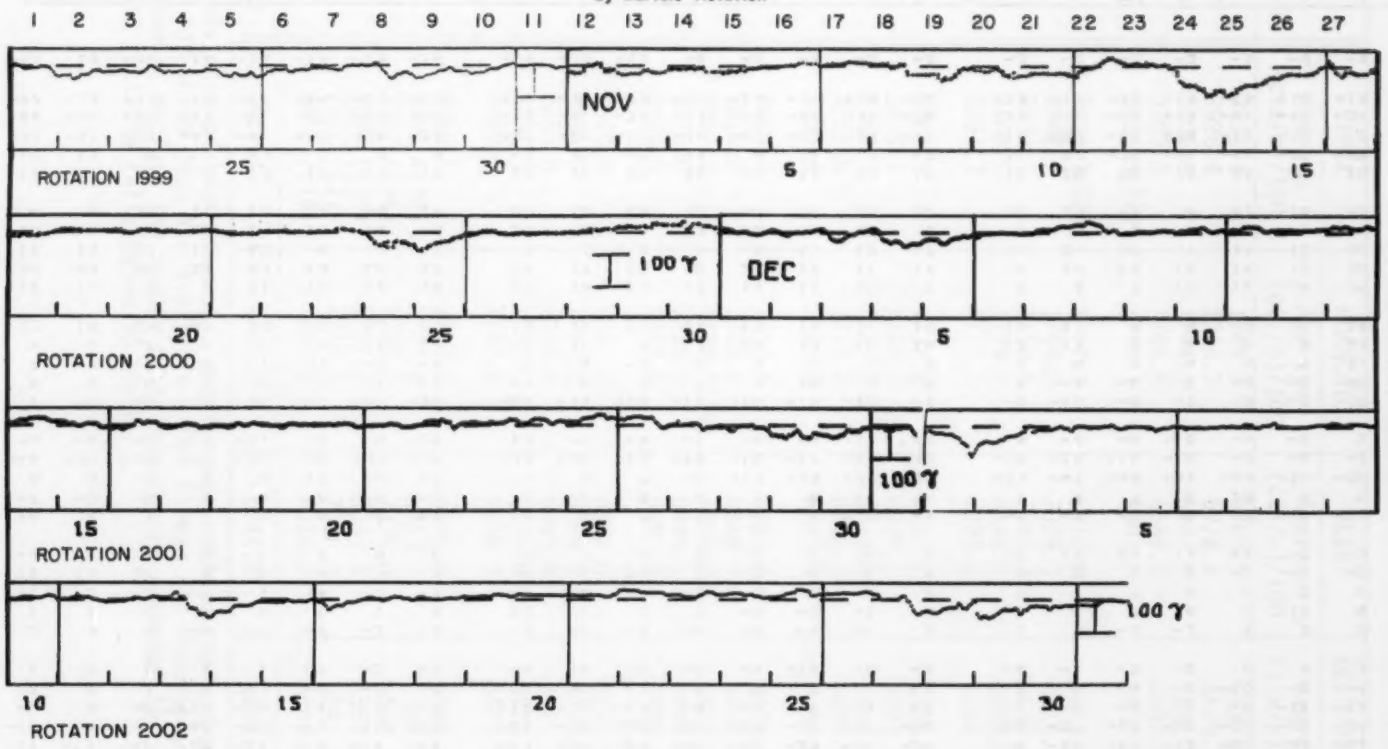
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-19	-11	-15	-20	-24	-24	-24	-21	-23	-27	-28	-25	-25	-30	-34	-37	-39	-50	-53	-58	-62	-83	-91	-78
2	-57	-55	-50	-47	-43	-43	-45	-51	-51	-51	-45	-39	-38	-38	-32	-29	-28	-27	-27	-26	-22	-20	-14	-15
3	-5	3	-2	-19	-16	-11	-8	-10	-12	-13	-13	-9	-9	-7	-4	-3	2	-1	-8	-9	-5	-14	-11	-3
4	2	4	3	0	-3	-6	-8	-4	0	-3	-7	-2	1	3	2	-1	7	0	-4	-8	-10	-8	-4	-3
5	1	2	1	1	1	-2	-3	-2	-4	-7	-8	-9	-9	-14	-6	-8	-4	-1	-3	-2	0	3	3	3
6	3	3	0	-8	-6	-2	-1	-2	-2	-2	-2	-6	-4	-4	-1	1	1	0	-2	-1	2	3	3	1
7	1	4	4	0	0	1	1	8	11	7	7	3	-4	-5	-1	1	6	6	7	6	9	13	9	1
8	-1	3	-3	-1	-1	-4	-3	-5	-3	-2	1	-2	2	2	3	4	5	7	7	8	5	5	6	8
9	10	13	12	9	8	4	1	3	6	9	11	7	6	6	6	4	3	3	1	-1	-1	-1	-3	-3
10	-3	-2	0	0	4	7	9	10	8	7	6	3	2	4	4	7	10	12	14	14	12	7	3	-1
11	-2	1	1	2	3	6	7	10	18	7	3	7	5	6	2	-1	-4	-4	-7	-8	-7	-11	-11	-5
12	-7	-9	-8	-4	-4	-6	-5	-2	1	2	5	7	5	2	-1	-2	1	4	7	10	10	9	8	5
13	3	3	7	9	8	17	22	16	4	8	7	-2	-17	-28	-29	-31	-33	-41	-48	-41	-44	-53	-56	-53
14	-46	-38	-35	-35	-36	-38	-39	-38	-33	-25	-19	-18	-16	-17	-17	-20	-19	-16	-15	-12	-9	-6	-8	-8
15	-6	-6	-8	-10	-11	-9	-9	-10	-10	-9	-4	-1	-4	-9	-11	-7	-4	-4	-6	-10	-4	-2	1	4
16	1	-9	-12	-10	-16	-22	-31	-32	-22	-19	-16	-16	-16	-16	-12	-7	-9	-10	-9	-7	-3	-2	0	1
17	5	6	6	2	-2	1	-1	-7	-4	0	2	6	7	10	3	5	5	-1	-1	1	-2	-6	-4	3
18	7	8	8	5	-1	-1	-2	-4	-4	-4	-2	-2	1	3	4	5	3	0	2	4	6	9	11	9
19	8	8	7	6	9	10	11	11	11	11	7	12	15	14	16	14	13	13	9	6	6	8	12	15
20	17	15	13	13	13	12	10	11	12	14	12	11	10	11	11	13	12	11	9	9	8	12	14	13
21	10	12	9	8	11	10	10	10	13	14	13	12	13	11	10	7	4	6	7	10	14	14	19	28
22	28	29	26	23	22	23	23	22	20	17	18	16	15	17	17	17	18	19	18	15	14	10	10	13
23	12	14	13	12	12	6	3	5	6	5	2	4	9	13	12	17	22	24	20	17	14	10	12	12
24	13	14	15	18	18	19	18	19	18	14	10	12	13	15	11	6	7	6	4	1	4	7	9	7
25	4	9	11	11	12	13	18	19	20	21	22	31	30	28	26	22	22	18	11	8	11	15	13	13
26	13	17	17	16	13	18	17	17	19	20	19	16	16	14	13	16	19	20	22	23	24	22	16	12
27	12	13	6	-2	-5	-2	0	0	-1	-3	-3	-1	9	12	5	-1	-11	-22	-35	-41	-46	-43	-37	-34
28	-33	-35	-39	-43	-42	-40	-36	-31	-27	-25	-23	-22	-22	-23	-20	-12	-17	-27	-24	-30	-16	-12	0	-10
29	-44	-55	-57	-47	-51	-57	-55	-50	-46	-41	-38	-33	-29	-26	-34	-32	-30	-28	-24	-34	-44	-44	-32	-30
30	-27	-20	-18	-19	-17	-19	-23	-23	-23	-24	-32	-27	-19	-17	-20	-24	-23	-17	-15	-16	-18	-16	-14	-15
31	-16	-13	-14	-14	-14	-16	-18	-16	-14	-15	-10	-6	-2	-2	-2	-3	-3	-2	-2	-3	-5	-9	-9	-5



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

REGIONS OF SOLAR ACTIVITY

JANUARY 1980

HALE REGION 16618 CMP DATE 28.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	22	16618	S13 E75	302	1200	3.0	21218	S12 E73	306	(AP)	3				
80	1	23	16618	S12 E63	302	1000	3.0	21218	S12 E62	304	(B)	3	R	40	6	CRO
80	1	24	16618	S12 E48	303	1600	3.5	21218	S12 E48	305	(B)	3	R	30	5	CRO
80	1	25	16618	S12 E35	304	1900	3.5	21218	S12 E41	299	(AF)	2	R	10	2	BXO
80	1	26	16618					21222	S10 E17	308	(AP)	3				
80	1	27	16618						S11 E16				H	30	7	CSO
80	1	28	16618						S11 W04				R	30	15	BXO
80	1	29	16618						S12 W19				R	10	4	BXO
80	1	30	16618						S11 W36				R	10	3	BXO
80	1	31	16618					21222	S11 W52	313	(AP)	3	R	10	2	BXO
80	2	1	16618	S13 W59	305	800	2.5		S10 W65				R	10	1	AXX
80	2	2	16618	S11 W70	300	300	2.5									

HALE REGION 16617 CMP DATE 28.9 RETURN OF REGION 16556 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	22	16617	N20 E80	297	200	2.0									
80	1	23	16617	N22 E72	293	700	2.5									
80	1	24	16617	N22 E58	293	800	3.0									
80	1	25	16617	N22 E42	297	1000	3.0									
80	2	1	16617	N23 W47	293	400	2.5									
80	2	2	16617	N26 W66	296	200	1.5									

HALE REGION 16621 CMP DATE 29.4 RETURN OF REGION 16557 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	23	16621	N15 E75	290	100	2.5									
80	1	24	16621	N14 E65	286	300	2.0									
80	1	25	16621	N13 E49	290	300	2.5									
80	1	26	16621						N14 E08				R	10	3	BXO
80	1	29	16621						N15 W05				R	10	1	AXX
80	1	30	16621						N14 W20				R	10	2	BXO
80	1	31	16621					21225	N15 W34	295	(AF)	3	R	10	1	AXX
80	2	1	16621	N14 W47	293	400	2.5		N16 W46				R	10	1	AXX
80	2	2	16621	N15 W64	294	300	2.0									

HALE REGION 16622 CMP DATE 30.5 RETURN OF REGION 16558 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	24	16622	S16 E75	276	1400	4.0	21221	S18 E75	278	(AP)	3	R	60	5	CRO
80	1	25	16622	S16 E63	276	3100	4.0	21221	S18 E61	279	(BP)	3	R	40	4	CRO
80	1	26	16622					21221	S20 E47	278	(AP)	3				
80	1	28	16622						S20 E26				R	30	15	BXO
80	1	29	16622						S22 E14				R	80	11	DRI
80	1	30	16622						S22 W03				R	30	6	CRO
80	1	31	16622					21226	S16 W16	277	(BF)	3	R	20	7	BXO
80	2	1	16622	S17 W28	274	2500	3.0		S20 W28				R	20	5	BXO
80	2	2	16622	S17 W45	275	1600	3.0									
80	2	3	16622	S19 W55	272	900	3.0	21236	S11 W69	290	(X)	1				
80	2	4	16622	S18 W70	274	500	2.5									

HALE REGION 16624 CMP DATE 31.8 RETURN OF REGION 16563 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	25	16624	S14 E80	259	500	2.5									
80	2	1	16624	S13 W12	258	900	3.0									
80	2	2	16624	S13 W27	257	900	3.0	21234	S13 W23	257	(B)	2				
80	2	3	16624	S12 W41	258	500	3.0	21234	S15 W36	257	(AP)	2				
80	2	4	16624	S12 W54	258	500	2.5									
80	2	6	16624	S24 W79	258	200	1.5									

REGIONS OF SOLAR ACTIVITY

DECEMBER 1979

HALE REGION 16455 — CMP DATE 1.4 — RETURN OF REGION 16401 — ROTATION 4

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	25	16455	S16 E77	347	400	2.0	21088	S12 E73	350	(AP)	4	P	70	1	HSX
79	11	26	16455					21088	S12 E60	352	(AP)	4	P	70	1	HSX
79	11	27	16455	S16 E48	348	1900	2.5	21088	S12 E48	350	(AP)	4				
79	11	28	16455	S15 E36	347	1700	2.5	21088	S12 E35	350	(AP)	4				
79	11	29	16455	S15 E20	347	1500	2.5	21088	S12 E20	351	(AP)	3	H	80	1	HSX
79	11	30	16455	S15 E10	348	1600	2.5	21088	S12 E08	351	(AP)	4	R	80	1	HSX
79	12	1	16455	S16 W05	348	3400	2.5	21088	S12 W05	350	(AP)	4	H	80	1	HSX
79	12	2	16455					21088	S12 W19	349	(AP)	4	R	80	1	HSX
79	12	3	16455	S16 W30	346	2000	2.0	21088	S12 W32	350	(AP)	4				
79	12	3	16455					21107	S08 W37		(AP)	2				
79	12	4	16455	S16 W44	347	1900	2.0	21088	S12 W44	349	(AP)	4				
79	12	5	16455	S17 W57	347	1200	2.0	21088	S13 W57	348	(BP)	3				
79	12	6	16455	S15 W73	348	700	2.5	21088	S13 W66	347	(AP)	3				

HALE REGION 16463 — CMP DATE 1.5 — RETURN OF PART OF REGION 16402 — ROTATION 2

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	28	16463	N11 E38	345	200	2.5									
79	11	29	16463	N12 E23	344	500	2.5									
79	11	30	16463	N12 E12	346	600	3.0									
79	12	1	16463	N12 W03	346	500	3.5		N14 E01				H	10	2	BXO
79	12	2	16463						N12 W12				R	10	2	BXO
79	12	3	16463	N12 W29	345	1000	3.0									
79	12	4	16463	N12 W43	346	700	2.5									
79	12	5	16463	N10 W55	345	500	3.0									
79	12	6	16463	N11 W70	345	100	1.0									

HALE REGION 16464 — CMP DATE 2.4

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	28	16464	S10 E61	322	100	1.0									

HALE REGION 16471 — CMP DATE 2.4

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	30	16471	N28 E24	334	200	2.0		N27 E26				R	10	1	AXX
79	12	1	16471	N28 E09	334	500	3.0		N29 E06				H	10	1	AXX
79	12	3	16471	N28 W16	334	400	3.0									
79	12	4	16471	N28 W31	334	500	3.0	21110	N27 W30		(AP)	2				
79	12	5	16471	N2: W43	333	300	3.5									
79	12	6	16471	N28 W60	335	300	3.0									
79	12	7	16471	N27 W71	334	300	2.0									

HALE REGION 16456 — CMP DATE 2.5

CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	26	16456					21092	S16 E75	337	(AP)	3	P	60	1	HSX
79	11	27	16456	S16 E62	334	700	3.0	21092	S17 E63	335	(AP)	4				
79	11	28	16456	S15 E50	333	900	3.0	21092	S16 E50	335	(AP)	4				
79	11	29	16456	S15 E35	332	900	2.5	21092	S16 E36	335	(BP)	3	H	110	3	CSO
79	11	30	16456	S15 E24	334	1000	3.0	21092	S16 E24	335	(AP)	4	R	110	2	CSO
79	12	1	16456	S15 E10	333	1600	3.0	21092	S16 E11	334	(AP)	4	H	90	1	HSX
79	12	2	16456					21092	S16 W04	334	(AP)	4	R	100	1	HSX
79	12	3	16456	S14 W15	331	1000	3.0	21092	S16 W16	334	(AP)	4				
79	12	4	16456	S14 W31	334	1000	3.0	21092	S16 W28	333	(AP)	4				
79	12	5	16456	S14 W43	333	400	2.5	21092	S16 W42	333	(AP)	4				
79	12	6	16456	S14 W59	334	400	2.0	21092	S16 W53	332	(AP)	4				
79	12	7	16456	S14 W70	333	400	1.5	21092	S16 W66	331	(AP)	2				
79	12	8	16456					21092	S17 W80	332	AP	2				

REGIONS OF SOLAR ACTIVITY

DECEMBER 1979

HALE REGION 16457 CMP DATE 2.8 RETURN OF PART OF REGION 16406 ROTATION 5 AND 3

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	27	16457	N14 E65	331	1200	2.5									
79	11	28	16457	N14 E54	329	1000	2.5									
79	11	29	16457	N15 E38	329	1000	2.5									
79	11	30	16457	N15 E27	331	1500	3.(									
79	12	1	16457	N15 E14	329	2400	3.(		N14 E14				H	18	1	AXX
79	12	3	16457	N15 W13	329	1900	3.5									
79	12	4	16457	N15 W24	327	2000	3.(									
79	12	5	16457	N15 W38	328	1400	3.(									
79	12	6	16457	N15 W54	329	900	3.(	21114	N13 W59		(AP)	1				
79	12	7	16457	N14 W62	325	900	2.5	21114	N13 W70		AP					
79	12	8	16457	N15 W73	323	900	1.5									

HALE REGION 16474 CMP DATE 3.2

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	30	16474	N12 E46	312	100	1.5									

HALE REGION 16475 CMP DATE 3.2

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	1	16475	N30 E19	324	300	3.5									
79	12	3	16475	N31 W08	324	100	2.0									

HALE REGION 16458 CMP DATE 3.4

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	27	16458	S19 E75	321	1100	2.0									
79	11	28	16458	S18 E60	323	1300	3.0									
79	11	29	16458	S18 E45	322	1000	2.5		S16 E43				H	80	1	HSX
79	11	30	16458	S18 E35	323	1300	3.(									
79	12	1	16458	S19 E24	319	1900	3.5									
79	12	2	16458					21101	S15 E06	324	(B)	3				
79	12	3	16458	S16 W05	321	2400	4.(	21101	S15 W05	323	(B)	4				
79	12	4	16458	S16 W19	322	4000	4.(	21101	S15 W16	321	(BY)	4				
79	12	5	16458	S16 W33	323	4100	4.(	21101	S15 W30	321	(BY)	4				
79	12	6	16458	S17 W47	322	3300	4.(	21101	S14 W42	321	(BP)	4				
79	12	7	16458	S17 W57	320	3500	4.5	21101	S14 W55	320	(BP)	3				
79	12	8	16458	S17 W70	320	3500	4.5	21101	S14 W70	322	(AP)	3				
79	12	9	16458	S17 W85	322	500	2.5	21101	S15 W80	319	(X)	1				

HALE REGION 16473 CMP DATE 3.7 RETURN OF PART OF REGION 16406 ROTATION 5 AND 3

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	30	16473	N17 E43	315	400	2.(									
79	12	1	16473	N16 E28	315	500	2.5									
79	12	3	16473	N19 W01	317	400	2.5									
79	12	4	16473	N18 W13	316	200	2.5									
79	12	5	16473	N18 W27	317	200	2.(									

HALE REGION 16461 CMP DATE 3.8 RETURN OF PART OF REGION 16405 ROTATION 3

					CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	27	16461	N24 E78	319	700	2.0									
79	11	28	16461	N26 E66	317	700	2.0									
79	11	29	16461	N27 E52	315	400	2.5									
79	11	30	16461	N27 E42	316	600	2.5									
79	12	1	16461	N28 E27	316	800	3.(									
79	12	3	16461	N27 E01	315	600	3.0									
79	12	4	16461	N27 W12	315	700	2.(									
79	12	5	16461	N26 W27	317	600	3.(									
79	12	6	16461	N25 W44	319	400	1.5									
79	12	7	16461	N25 W54	317	600	2.(									

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HALE REGION 16461 (CONT) CMP DATE 3.8 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	8	16461	N24 W65	315	800	1.0									

HALE REGION 16472 CMP DATE 3.9

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	30	16472	S29 E36	322	300	1.5									
79	12	1	16472	S27 E23	320	400	2.5									
79	12	3	16472	S27 E02	314	300	2.0									
79	12	4	16472	S27 W17	320	400	3.0									

HALE REGION 16459 CMP DATE 4.3 RETURN OF REGION 16412 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	27	16459	S25 E78	318	300	1.5	21094	S23 E79	319	AP	2				
79	11	28	16459	S24 E65	318	1000	3.0	21094	S23 E67	318	(AP)	4				
79	11	29	16459	S24 E53	314	1300	2.5	21094	S21 E53	318	(BF)	3	H	210	3	HKX
79	11	30	16459	S24 E43	315	2400	2.5	21094	S21 E41	318	(BF)	4	R	120	5	DSO
79	12	1	16459	S24 E30	313	2200	3.0	21094	S20 E27	318	(B)	4	H	150	7	CSO
79	12	2	16459					21094	S22 E16	314	(AP)	4				
79	12	3	16459	S24 E07	309	1500	3.5	21094	S23 E03	315	(AP)	4				
79	12	4	16459	S24 W07	318	2000	3.0	21094	S23 W10	315	(AP)	3				
79	12	5	16459	S24 W22	312	2000	3.5	21094	S22 W23	314	(AP)	3				
79	12	6	16459	S24 W35	310	1300	3.5	21094	S22 W36	315	(AP)	4				
79	12	6	16459					21116	S20 W38		(BF)	4				
79	12	7	16459	S24 W46	309	1200	3.5	21094	S22 W48		(AP)	3				
79	12	7	16459					21116	S20 W52		(BF)	3				
79	12	8	16459	S24 W62	312	700	2.5	21094	S22 W60	312	(AP)	3				
79	12	8	16459					21116	S20 W64		(BF)	3				
79	12	9	16459	S24 W78	315	700	2.0	21116	S21 W79		AP					

HALE REGION 16481 CMP DATE 4.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	3	16481	N14 E09	307	100	1.5									
79	12	4	16481	N14 W03	306	100	2.5									
79	12	5	16481	N13 W18	308	100	2.0									

HALE REGION 16488 CMP DATE 4.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	5	16488	S13 W19	309	100	2.0									

HALE REGION 16482 CMP DATE 5.0

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	4	16482	N09 E03	300	100	2.0									

HALE REGION 16466 CMP DATE 5.3

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	29	16466	N22 E65	302	400	1.0									
79	11	30	16466	N20 E56	302	600	2.0									
79	12	1	16466	N22 E43	300	1700	2.0		N21 E41				H	10	2	BXO
79	12	3	16466	N22 E17	299	1500	3.0									
79	12	4	16466	N20 E06	297	2200	3.0									
79	12	5	16466	N20 W08	296	1900	2.5	21113	N20 W05		(AP)	3				
79	12	6	16466	N20 W24	299	1300	2.5	21113	N19 W17		(AP)	2				
79	12	7	16466	N20 W34	297	1500	1.5									
79	12	8	16466	N21 W45	295	1500	2.0									

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HALE REGION 16466 (CONT) CMP DATE 5.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	9	16466	N21 W62	299	700	1.5									

HALE REGION 16465 CMP DATE 5.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	29	16465	S23 E69	298	700	2.5	21095	S26 E76	295	(BF)	3	M	50	1	HSX
79	11	30	16465	S24 E59	299	1300	3.0	21095	S24 E60	299	(B)	4				
79	12	1	16465	S25 E47	296	2100	3.5	21095	S24 E37	308	(BF)	3				
79	12	1	16465					21100	S21 E51		(B)	2				
79	12	2	16465					21095	S25 E35	295	(BF)	3				
79	12	3	16465	S24 E22	294	2500	4.0	21095	S27 E21	297	(B)	3	M	140	12	EAI
79	12	4	16465	S25 E08	295	3700	4.0	21095	S24 E07	298	(B)	3	R	210	18	EAI
79	12	5	16465	S25 W05	295	4200	4.0	21095	S24 W06	297	(BY)	4				
79	12	6	16465	S25 W20	295	3100	3.5	21095	S25 W16	295	(BY)	4				
79	12	7	16465	S25 W30	293	3600	4.0	21095	S25 W28	293	(BY)	4				
79	12	8	16465	S25 W43	293	4300	3.5	21095	S24 W43	295	(BP)	4				
79	12	9	16465	S25 W56	293	3400	3.0	21095	S24 W57	296	(BP)	4				
79	12	10	16465					21095	S23 W74	300	(AP)	4				
79	12	11	16465	S27 W85	296	400	3.0									

HALE REGION 16480 CMP DATE 5.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	3	16480	S16 E25	291	500	3.5									
79	12	4	16480	S18 E09	294	700	3.0									
79	12	5	16480	S18 W03	293	300	3.0									
79	12	6	16480	S19 W21	296	900	3.0	21117	S18 W16	295	(AP)	2				
79	12	7	16480	S20 W31	294	1100	3.5	21117	S20 W29	294	(B)	2				
79	12	8	16480	S20 W45	295	800	3.0	21117	S20 W44	296	(B)	3				
79	12	9	16480	S20 W62	299	500	3.0	21117	S20 W57	296	(B)	2				

HALE REGION 16477 CMP DATE 6.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	3	16477	N22 E32	284	500	2.5	21108	N17 E33		(B)	3	M	10	2	BXO
79	12	4	16477	N21 E18	285	600	3.0	21108	N19 E19		(B)	2				
79	12	5	16477	N21 E05	285	300	3.0									
79	12	6	16477	N20 W09	284	200	2.0									
79	12	7	16477	N20 W21	284	200	2.0									
79	12	8	16477	N21 W30	280	200	1.0									

HALE REGION 16467 CMP DATE 6.6 RETURN OF REGION 16413 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	11	29	16467	S14 E90	277	200	3.5									
79	11	30	16467	S18 E80	278	1800	3.5	21097	S14 E75	284	(BF)	4	R	140	2	CSO
79	12	1	16467	S15 E62	281	2900	3.5	21097	S15 E60	285	(B)	4	M	340	13	CHI
79	12	2	16467					21097	S15 E46	284	(AP)	4	R	300	9	DHO
79	12	3	16467	S14 E37	279	6300	4.0	21097	S17 E36	282	(BP)	4				
79	12	4	16467	S15 E24	279	6400	4.0	21097	S15 E21	284	(BP)	4				
79	12	5	16467	S16 E11	279	6600	4.0	21097	S15 E07	284	(BP)	4				
79	12	6	16467	S16 W04	279	5100	4.0	21097	S15 W03	282	(D)	5				
79	12	7	16467	S16 W15	278	5300	4.0	21097	S15 W15	280	(EP)	5				
79	12	8	16467	S16 W28	278	5100	4.0	21097	S15 W28	280	(BP)	5				
79	12	9	16467	S17 W42	279	3500	3.5	21097	S15 W42	281	(AP)	5				
79	12	10	16467					21097	S15 W55	281	(AP)	4				
79	12	11	16467	S18 W68	279	1700	2.5	21097	S16 W67	280	(AP)	4				

HALE REGION 16497 CMP DATE 6.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	8	16497	N16 W26	276	100	2.0									
79	12	9	16497	N16 W40	277	100	2.0									

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HALE REGION 16483 CMP DATE 7.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	4	16483	N13 E33	270	300	2.0	21111	N13 E34		(AP)	2				
79	12	5	16483	N14 E18	272	300	3.0									
79	12	6	16483	N13 E04	271	400	3.0	21111	N13 E08		(B)	2				
79	12	7	16483	N13 W07	270	400	2.5	21111	N13 W05		(B)	2				
79	12	8	16483	N13 W19	269	200	2.0	21111	N13 W19		(AP)	2				
79	12	9	16483	N13 W35	272	200	3.0	21111	N14 W32		(BF)	3				
79	12	10	16483					21111	N13 W46		(B)	3				
79	12	11	16483	N12 W64	275	1000	4.0	21111	N13 W59		(B)	4				
79	12	12	16483	N13 W80	275	500	3.5	21111	N13 W75		B					

HALE REGION 16508 CMP DATE 7.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	11	16508	S16 W51	262	200	2.0									
79	12	12	16508	S14 W71	266	300	2.0									

HALE REGION 16476 CMP DATE 8.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	1	16476	S26 E85	258	700	4.0									
79	12	2	16476					21102	S25 E65	265	(AP)	3				
79	12	3	16476	S25 E56	260	1900	3.5	21102	S27 E53	265	(AP)	3	H	10	1	AXX
79	12	4	16476	S25 E42	261	1700	3.5	21102	S26 E49	256	(BF)	3				
79	12		16476					21112	S24 E37	268	(AP)	3				
79	12	5	16476	S25 E29	261	1800	3.5	21102	S25 E37	254	(AF)	2				
79	12		16476					21112	S24 E23	268	(AP)	2				
79	12	6	16476	S25 E16	259	1700	3.0	21102	S25 E25	254	(AF)	2				
79	12		16476					21112	S24 E14	265	(B)	2				
79	12	7	16476	S25 E05	258	1900	3.5	21102	S25 E13	252	B	2				
79	12		16476					21112	S24 E02	263	(BP)	2				
79	12	8	16476	S25 W06	256	1700	4.0	21112	S25 W10	262	(B)	2				
79	12	9	16476	S25 W22	259	1800	3.5	21112	S25 W26	265	(AP)	2				
79	12	11	16476	S26 W51	262	1400	2.5									
79	12	12	16476	S26 W64	259	600	3.0									
79	12	13	16476					21149	S27 W77		(AP)	2				

HALE REGION 16479 CMP DATE 8.9 RETURN OF REGION 16148 ROTATIONS 4 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	2	16479					21105	N22 E80		(AP)	4				
79	12	3	16479	N26 E68	248	1600	2.0	21105	N19 E68		(AP)	3				
79	12	4	16479	N25 E52	251	1700	1.5	21105	N21 E52		(AP)	4				
79	12	5	16479	N24 E37	253	1900	2.5	21105	N21 E39		(AP)	4				
79	12	6	16479	N22 E24	251	1200	2.0	21105	N21 E27		(AP)	4				
79	12	7	16479	N22 E14	249	2500	2.5	21105	N21 E15		(AP)	4				
79	12	7	16479					21120	N16 E13		(AP)	2				
79	12	7	16479					21121	N26 E22		AP					
79	12	8	16479	N22 E01	249	2400	2.5	21105	N21 E03		(AP)	4				
79	12	8	16479					21129	N21 W03		(AP)	1				
79	12	8	16479					21130	N16 E07		(AP)	2				
79	12	9	16479	N22 W13	250	1500	2.5	21105	N22 W11		(AP)	3				
79	12	10	16479					21105	N23 W22		(AP)	3				
79	12	11	16479	N22 W41	252	1400	3.0	21105	N21 W35		(AP)	2				
79	12	12	16479	N22 W52	247	800	3.0									
79	12	14	16479	N27 W71	242	200	2.0									

HALE REGION 16484 CMP DATE 9.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	4	16484	N14 E68	243	200	1.5									
79	12	5	16484	N16 E46	244	100	2.0									

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HALE REGION 16478 CMP DATE 9.7 RETURN OF REGION 16418 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	2	16478					21103	S12 E84		(AP)	4				
79	12	2	16478					21104	S15 E82		(AP)	2				
79	12	3	16478	S13 E72	244	4800	4.8	21103	S14 E74		(AP)	4				
79	12	3	16478					21104	S16 E70		(AP)	4				
79	12	4	16478	S14 E62	241	8200	4.5	21103	S12 E58		(D)	4	R	430	7	DSO
79	12	4	16478					21104	S16 E56		(AP)	4				
79	12	5	16478	S14 E49	241	10200	4.0	21103	S12 E44		(BP)	4				
79	12	5	16478					21104	S16 E42		(AP)	4				
79	12	6	16478	S14 E34	241	9700	4.0	21103	S11 E33		(BP)	5				
79	12	6	16478					21104	S15 E30		(AP)	4				
79	12	7	16478	S14 E25	238	10000	4.5	21103	S11 E20		(BP)	5				
79	12	7	16478					21104	S15 E17		(AP)	4				
79	12	7	16478					21128	S20 E24		AP					
79	12	8	16478	S15 E12	238	9600	4.0	21103	S11 E07		(BY)	5				
79	12	8	16478					21104	S15 E04		(AP)	4				
79	12	8	16478					21131	S15 E25		(AF)	3				
79	12	9	16478	S16 W01	238	9500	4.0	21103	S12 W05		(BY)	5				
79	12	9	16478					21104	S15 W09		(AP)	5				
79	12	9	16478					21136	S29 W05		(B)	2				
79	12	10	16478					21103	S13 W18		(BP)	5				
79	12	10	16478					21104	S15 W22		(BP)	4				
79	12	10	16478					21140	S06 W18		(B)	3				
79	12	11	16478	S16 W28	239	8900	3.5	21103	S12 W32		(BP)	5				
79	12	11	16478					21104	S16 W35		(AP)	4				
79	12	11	16478					21141	S07 W31		(BF)	2				
79	12	12	16478	S16 W44	239	8100	3.0	21103	S12 W48		(AP)	4				
79	12	12	16478					21104	S16 W48		(AP)	4				
79	12	13	16478					21103	S13 W62		(AP)	3				
79	12	13	16478					21104	S16 W61		(AP)	4				
79	12	13	16478					21151	S14 W78		(B)	3				
79	12	13	16478					21153	S17 W43		(AP)	2				
79	12	14	16478	S16 W64	235	7300	3.0	21103	S13 W75		(AP)	4				
79	12	14	16478					21104	S15 W74		(AP)	4				
79	12	15	16478	S16 W74	232	3600	2.0									

HALE REGION 16487 CMP DATE 9.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	4	16487	N10 E75	228	700	2.0									
79	12	5	16487	N11 E56	232	400	3.5									
79	12	6	16487	N08 E38	237	400	3.0	21118	N09 E43		(B)	2				
79	12	7	16487	N08 E26	237	600	3.5	21118	N09 E29		(BF)	3				
79	12	8	16487	N08 E14	236	1000	3.5	21118	N09 E15		(BF)	4				
79	12	9	16487	N08 W01	238	1100	3.0	21118	N09 E00		(BP)	4				
79	12	10	16487					21118	N09 W12		(BP)	3				
79	12	11	16487	N08 W28	239	500	4.0	21118	N08 W27		(B)	3				
79	12	12	16487	N08 W42	237	400	4.0	21118	N08 W40		(B)	3				
79	12	13	16487					21118	N08 W50		(B)	3				
79	12	14	16487	N08 W67	236	600	3.5	21118	N08 W62		(AF)	3				
79	12	15	16487	N08 W80	236	300	2.0									

HALE REGION 16517 CMP DATE 9.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	12	16517	S32 W43	238	200	2.5									
79	12	13	16517					21150	S31 W53		(AP)	2				
79	12	14	16517					21150	S30 W67		(AP)	2				

HALE REGION 16494 CMP DATE 10.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	6	16494	N11 E45	230	300	3.0									
79	12	7	16494	N11 E32	231	500	3.5									
79	12	8	16494	N11 E20	230	600	3.5									
79	12	9	16494	N12 E05	232	300	3.0									
79	12	11	16494	N11 W22	233	200	2.0									

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HALE REGION 16485 — CMP DATE 10.3 — RETURN OF PART OF REGION 16419A — ROTATION 4 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	4	16485	N26 E75	228	800	2.0							
79	12	5	16485	N27 E60	230	1400	3.0							
79	12	6	16485	N27 E44	231	800	3.0							
79	12	7	16485	N27 E35	228	1200	3.0	21122	N24 E35		AP			
79	12	8	16485	N27 E22	228	1100	3.5	21122	N25 E19		(B)	3		
79	12	9	16485	N27 E07	230	1500	3.5	21122	N25 E07		(B)	2		
79	12	10	16485					21122	N25 W05		AP			
79	12	11	16485	N27 W20	239	900	2.5							
79	12	12	16485	N27 W34	229	800	2.5							
79	12	14	16485	N27 W57	228	600	3.5							
79	12	15	16485	N26 W67	225	600	2.0							
79	12	16	16485	N27 W78	223	300	1.5							

HALE REGION 16486 — CMP DATE 10.7 — RETURN OF PART OF REGION 16421 — ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	4	16486	N16 E74	229	200	2.0							
79	12	5	16486	N21 E66	224	1300	3.0							
79	12	6	16486	N21 E51	224	900	3.0	21119	N21 E53		(AP)	2		
79	12	7	16486	N22 E37	226	1000	3.0	21119	N21 E40		(AP)	2		
79	12	8	16486	N22 E27	223	1300	3.5	21119	N22 E30		(B)	4		
79	12	9	16486	N22 E14	223	1700	3.5	21119	N22 E16		(B)	3		
79	12	10	16486					21119	N21 E01		(AP)	3		
79	12	11	16486	N22 W14	225	1400	3.5	21119	N19 W13		(AP)	2		
79	12	12	16486	N22 W28	223	1100	3.0							
79	12	14	16486	N22 W53	224	800	3.5							
79	12	15	16486	N20 W64	222	500	2.0							
79	12	16	16486	N20 W75	220	500	2.0							

HALE REGION 16490 — CMP DATE 10.8 — RETURN OF REGION 16421 — ROTATION 4 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	5	16490	N13 E67	223	1500	3.0							
79	12	6	16490	N13 E54	221	1600	3.0							
79	12	7	16490	N14 E42	221	2500	3.0	21124	N13 E45		AP			
79	12	8	16490	N14 E27	223	3300	3.5							
79	12	9	16490	N12 E14	223	2200	3.0	21139	N11 E18		(BP)	2		
79	12	10	16490					21139	N11 E05		(BP)	3		
79	12	11	16490	N12 W13	224	2100	3.5	21139	N10 W09		(BP)	3		
79	12	12	16490	N11 W26	223	2300	4.0	21139	N10 W24		(BP)	2		
79	12	13	16490					21139	N11 W37		(BP)	3		
79	12	14	16490	N12 W54	225	2200	3.5	21139	N12 W53		(AP)	3		
79	12	15	16490	N12 W68	226	1500	2.5							
79	12	16	16490	N11 W79	224	600	2.5							

HALE REGION 16493 — CMP DATE 10.8

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	6	16493	S34 E47	228	100	2.0							
79	12	7	16493	S34 E38	225	100	2.0							
79	12	8	16493	S35 E25	225	300	3.0	21133	S35 E27	225	(B)	2		
79	12	9	16493	S34 E13	224	500	3.5	21133	S35 E13	226	(B)	3		
79	12	10	16493					21133	S34 E00	226	(B)	3		
79	12	11	16493	S34 W16	227	1100	4.0	21133	S35 W14	227	(B)	4		
79	12	12	16493	S34 W31	226	1300	3.5	21133	S36 W23	222	(AP)	3		
79	12	13	16493					21133	S36 W39	225	(B)	3		
79	12	14	16493	S34 W56	227	1900	4.0	21133	S34 W54	227	(B)	3		
79	12	15	16493	S34 W68	226	1800	4.0	21133	S35 W67	227	(B)	3		
79	12	16	16493	S34 W79	224	700	3.0							

HALE REGION 16492 — CMP DATE 11.4

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	5	16492	S13 E70	220	2100	3.0							
79	12	6	16492	S13 E58	217	1800	3.5							
79	12	7	16492	S13 E46	217	2400	4.0							

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HALE REGION 16492 (CONT) CMP DATE 11.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	8	16492	S14 E34	216	2200	4.0
79	12	9	16492	S14 E19	218	2700	4.0
79	12	11	16492	S14 W05	216	2100	3.0
79	12	12	16492	S14 W25	220	2000	3.5
79	12	13	16492				
79	12	14	16492	S15 W48	219	1600	3.0
79	12	15	16492	S16 W62	220	960	3.0
79	12	16	16492	S16 W75	220	1000	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21132	S13 E31		(AP)	2				
21154	S23 W45		(AP)	1				

HALE REGION 16489 CMP DATE 11.6 RETURN OF PART OF REGION 16419B ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	5	16489	N33 E70	220	100	1.5
79	12	6	16489	N33 E59	216	400	2.0
79	12	7	16489	N34 E48	215	800	2.5
79	12	8	16489	N34 E36	214	1200	3.0
79	12	9	16489	N34 E24	213	1300	3.0
79	12	11	16489	N34 W03	214	700	3.0
79	12	12	16489	N34 W18	213	700	2.5
79	12	14	16489	N34 W42	213	200	2.5
79	12	15	16489	N33 W54	212	200	2.5
79	12	16	16489	N33 W65	210	200	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16491 CMP DATE 11.6 RETURN OF PART OF REGION 16424 AND 16422 ROTATION 5 AND 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	5	16491	S03 E68	222	900	2.5
79	12	6	16491	S03 E58	217	1300	2.5
79	12	7	16491	N02 E47	216	2700	3.0
79	12	8	16491	S01 E33	217	2800	3.0
79	12	9	16491	N01 E22	215	3300	3.5
79	12	10	16491				
79	12	11	16491	S02 W03	214	2200	2.5
79	12	12	16491	S02 W19	214	2000	2.5
79	12	14	16491	S02 W45	216	1900	3.0
79	12	15	16491	S01 W56	214	1900	2.5
79	12	16	16491	N01 W68	205	1000	1.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21143	S05 E04		(AP)	2				
21143	S07 W09		(B)	2				

HALE REGION 16499 CMP DATE 11.9 RETURN OF PART OF REGION 16421 ROTATION 5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	8	16499	N12 E42	208	400	3.0
79	12	9	16499	N12 E27	210	600	3.5
79	12	10	16499				
79	12	11	16499	N12 E01	210	600	3.0
79	12	12	16499	N11 W14	209	600	3.0
79	12	13	16499				
79	12	14	16499	N11 W38	209	300	3.0
79	12	15	16499	N11 W52	210	300	2.0
79	12	16	16499	N11 W62	207	300	2.0
79	12	17	16499	N06 W72	203	300	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21125	N12 E44		(B)	3				
21125	N12 E30		(B)	3				
21125	N12 E17		(B)	3				
21125	N11 E03		(BP)	4				
21125	N09 W12		(AP)	3	H	20	1	HRX
21125	N09 W25		(AP)	3				
21125	N09 W39		(AP)	2				

HALE REGION 16495 CMP DATE 12.0 RETURN OF REGION 16423 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	6	16495	S16 E72	203	300	1.5
79	12	7	16495	S16 E59	204	1000	2.5
79	12	8	16495	S16 E45	205	1200	3.5
79	12	9	16495	S15 E31	206	1700	4.0
79	12	10	16495				
79	12	11	16495	S15 E03	208	1800	3.0
79	12	12	16495	S16 W12	207	1200	3.5
79	12	13	16495				
79	12	14	16495	S16 W37	208	2700	4.0
79	12	15	16495	S15 W49	207	2200	4.0
79	12	16	16495	S15 W62	207	2100	3.5
79	12	17	16495	S16 W75	206	2000	3.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21134	S16 E46	206	(B)	3				
21134	S16 E33	206	(BY)	4	H	250	15	DAO
21134	S16 E19	207	(BY)	3				
21134	S16 E05	208	(BY)	3				
21134	S16 W10	209	(BP)	2				
21134	S16 W22	208	(B)	3				
21134	S15 W35	208	(BP)	4				
21134	S15 W47	207	(B)	4				
21134	S15 W61	208	(B)	4				
21134	S14 W76	208	(AP)	4				

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HALE REGION 16501 — CMP DATE 12.4 — RETURN OF PART OF REGION 16425 — ROTATION 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	9	16501	N22 E37	200	800	2.5								
79	12	11	16501	N21 E04	203	500	2.0								
79	12	12	16501	N21 W07	202	500	2.5								
79	12	13	16501					21152	N19 W17		(AP)	1			
79	12	14	16501	N22 W32	203	600	2.0								
79	12	15	16501	N23 W39	197	1000	2.0								
79	12	16	16501	N23 W54	199	600	2.0								
79	12	17	16501	N22 W70	201	400	1.5								

HALE REGION 16509 — CMP DATE 12.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	11	16509	S16 E14	197	300	1.5								
79	12	12	16509	S16 W02	197	500	3.0								
79	12	14	16509	S16 W25	196	400	3.0								
79	12	15	16509	S16 W38	196	400	3.0	21158	S16 W37		(B)	2			
79	12	16	16509	S16 W52	197	800	4.5	21158	S18 W50		(B)	3			
79	12	17	16509	S18 W65	196	1000	3.5	21158	S19 W63		(B)	3			
79	12	18	16509	S18 W75	193	900	3.5	21158	S19 W75		AP				

HALE REGION 16503 — CMP DATE 13.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	9	16503	S25 E45	192	100	2.0	21140	S27 E46		(AP)	2			
79	12	10	16503					21140	S27 E34		(AP)	2			
79	12	11	16503	S25 E27	184	300	3.5	21140	S26 E19		(B)	2			
79	12	12	16503	S25 E03	192	300	2.0	21140	S27 E05		(B)	2			
79	12	13	16503					21140	S27 W07		(B)	3			
79	12	14	16503	S26 W22	193	400	3.0	21140	S27 W20		(B)	3			
79	12	15	16503	S26 W35	193	400	3.0	21140	S25 W27		(BP)	4			
79	12	16	16503	S27 W46	191	500	2.5	21140	S25 W40		(B)	4			
79	12	17	16503	S26 W61	192	300	2.0	21140	S24 W46		(BP)	4			
79	12	18	16503	S29 W75	193	100	1.5	21140	S25 W56		(BP)	4			
79	12	19	16503					21140	S23 W77		AP				

HALE REGION 16502 — CMP DATE 13.3 — RETURN OF PART OF REGION 16419B — ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	9	16502	N37 E45	192	400	2.0								
79	12	11	16502	N37 E20	191	500	2.0								
79	12	12	16502	N36 E05	190	400	2.0								
79	12	14	16502	N36 W14	185	600	2.0								
79	12	15	16502	N37 W24	182	1000	2.0								
79	12	16	16502	N38 W34	179	900	2.0								
79	12	17	16502	N38 W49	180	500	2.0								

HALE REGION 16506 — CMP DATE 13.3 — RETURN OF PART OF REGION 16425 — ROTATION 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	7	16506					21127	N13 E72		(AP)	3			
79	12	8	16506					21127	N13 E59		(AP)	3			
79	12	9	16506	N14 E46	191	500	2.5	21127	N13 E47		(AP)	4			
79	12	10	16506					21127	N13 E33		(BP)	4			
79	12	11	16506	N14 E19	192	700	3.0	21127	N13 E21		(AP)	4			
79	12	12	16506	N14 E05	190	700	2.5	21127	N12 E07		(AP)	3			
79	12	13	16506					21127	N12 W05		(AP)	3			
79	12	14	16506	N13 W19	190	1000	3.5	21127	N13 W18		(AP)	4			
79	12	15	16506	N13 W32	190	800	3.0	21127	N13 W32		(AP)	3			
79	12	16	16506	N13 W44	189	1100	3.0	21127	N13 W46		(AP)	4			
79	12	17	16506	N09 W58	189	600	3.5	21127	N13 W58		(AP)	3			
79	12	18	16506	N12 W70	188	600	3.0	21127	N13 W70		(AP)	3			

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HALE REGION 16496 CMP DATE 13.5 RETURN OF PART OF REGION 16425 AND NEW ROTATION 5 AND 1

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	6	16496	N19 E86	189	100	2.0									
79	12	7	16496	N22 E74	189	1500	3.0	21126	N18 E73		(AP)	4				
79	12	8	16496	N21 E69	181	3200	3.5	21126	N19 E59		(D)	3				
79	12	9	16496	N20 E50	187	2200	3.0	21126	N19 E46		(D)	4				
79	12	10	16496					21126	N19 E34		(BP)	4				
79	12	11	16496	N21 E22	189	2100	4.0	21126	N19 E22		(BP)	5				
79	12	12	16496	N21 E07	188	2000	3.5	21126	N19 E06		(AP)	4				
79	12	13	16496					21126	N19 W04		(BP)	4				
79	12	14	16496	N20 W18	189	2300	4.0	21126	N19 W17		(AP)	5				
79	12	15	16496	N19 W27	185	2200	4.0	21126	N19 W31		(BP)	4				
79	12	16	16496	N21 W44	189	2300	3.5	21126	N19 W45		(AP)	4				
79	12	17	16496	N18 W56	187	2500	4.0	21126	N20 W58		(AP)	4				
79	12	18	16496	N19 W67	185	900	3.0	21126	N20 W70		(AP)	4				

HALE REGION 16498 CMP DATE 14.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	8	16498	S08 E71	179	600	2.0	21136	S11 E71		AP					
79	12	9	16498	S08 E59	178	700	2.5	21136	S11 E60		(AP)	2				
79	12	11	16498	S08 E32	179	800	2.5									
79	12	12	16498	S11 E17	178	800	2.5									
79	12	14	16498	S11 W06	177	700	2.5									
79	12	15	16498	S12 W22	180	600	3.0									
79	12	16	16498	S12 W34	179	600	2.5									
79	12	17	16498	S10 W46	179	500	2.5									
79	12	18	16498	S10 W59	177	300	2.5									

HALE REGION 16507 CMP DATE 14.4 RETURN OF PART OF REGION 16426 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	8	16507					21135	N23 E73		(AF)	2				
79	12	9	16507	N24 E60	177	1000	2.5	21135	N23 E60		(B)	3				
79	12	10	16507					21135	N24 E48		(B)	4				
79	12	11	16507	N26 E33	178	2600	4.0	21135	N23 E34		(B)	4				
79	12	12	16507	N25 E17	178	2800	3.5	21135	N23 E22		(BP)	3				
79	12	13	16507					21135	N23 E07		(BP)	4				
79	12	14	16507	N25 W05	176	2800	4.0	21135	N23 W06		(BY)	4				
79	12	15	16507	N25 W18	176	2300	4.0	21135	N24 W18		(BP)	4				
79	12	16	16507	N25 W31	176	2400	3.5	21135	N22 W32		(AP)	4				
79	12	17	16507	N25 W45	176	2500	3.5	21135	N24 W45		(B)	4				
79	12	18	16507	N25 W66	184	1200	4.0	21135	N24 W57		(AP)	3				
79	12	20	16507	N25 W82	175	400	2.5									

HALE REGION 16505 CMP DATE 14.5

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	9	16505	N17 E75	162	600	1.5									
79	12	11	16505	N17 E38	173	600	3.0									
79	12	12	16505	N16 E19	176	1300	3.5	21146	N17 E23		(B)	3				
79	12	13	16505					21146	N16 E10		(B)	4				
79	12	14	16505	N16 W04	175	2700	4.0	21146	N16 W04		(D)	4				
79	12	15	16505	N16 W17	175	2700	3.5	21146	N17 W17		(D)	4				
79	12	16	16505	N16 W30	175	3000	4.0	21146	N17 W32		(BY)	4				
79	12	17	16505	N16 W44	175	3100	4.0	21146	N16 W45		(B)	4				
79	12	18	16505	N16 W58	176	3400	4.5	21146	N17 W57		(B)	4				
79	12	19	16505					21146	N17 W73		(B)	4				
79	12	20	16505	N15 W83	176	1600	3.5	21146	N19 W76		(AF)	4				

HALE REGION 16510 CMP DATE 14.5

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	11	16510	S25 E34	177	200	2.0									
79	12	12	16510	S25 E18	177	300	2.0									
79	12	14	16510	S25 W04	175	300	3.0									
79	12	15	16510	S24 W17	175	800	3.0									
79	12	16	16510	S24 W31	176	1100	3.0									

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HALE REGION 16510 (CONT) CMP DATE 14.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	17	16510	S25 W44	175	1100	3.0
79	12	18	16510	S24 W57	175	900	4.0
79	12	20	16510	S26 W80	173	800	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16511 CMP DATE 14.7

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	11	16511	N05 E40	171	100	2.0
79	12	12	16511	N04 E24	171	300	2.5
79	12	13	16511				
79	12	14	16511	N04 W02	173	500	4.0
79	12	15	16511	N04 W15	173	800	4.0
79	12	16	16511	N04 W28	173	700	4.5
79	12	17	16511	N04 W43	174	700	3.5
79	12	18	16511	N04 W55	173	600	3.0
79	12	20	16511	N04 W63	176	200	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21147	N03 E27		(B)	2				
21147	N03 E15		(B)	3				
21147	N04 W00		(BF)	4				
21147	N04 W12		(BF)	4				
21147	N04 W26		(AF)	3				

HALE REGION 16508 CMP DATE 15.2 RETURN OF REGION 16433 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	8	16508	S31 E71	179	600	1.5
79	12	9	16508	S31 E67	178	1700	2.0
79	12	10	16508				
79	12	11	16508	S32 E48	171	1800	2.5
79	12	12	16508	S32 E26	169	1600	3.0
79	12	13	16508				
79	12	14	16508	S33 E05	166	2100	3.5
79	12	15	16508	S34 W08	166	1900	3.5
79	12	16	16508	S34 W20	165	2000	3.0
79	12	17	16508	S34 W31	162	1900	3.0
79	12	18	16508	S34 W42	160	1500	2.5
79	12	20	16508	S34 W56	151	800	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21137	S31 E73		B					
21137	S32 E61		(AP)	2				
21137	S32 E49		(AP)	2				
21137	S32 E36		(AP)	2				
21137	S31 E12		(AP)	2				
21160	S33 W39		AP	2				

HALE REGION 16513 CMP DATE 15.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	11	16513	N18 E46	165	400	2.0
79	12	12	16513	N18 E30	165	300	2.5
79	12	14	16513	N18 E01	163	400	3.0
79	12	15	16513	N16 W07	165	400	3.0
79	12	16	16513	N18 W19	164	400	3.0
79	12	17	16513	N18 W33	164	400	3.0
79	12	18	16513	N18 W45	163	400	2.5
79	12	20	16513	N18 W68	161	300	1.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 16514 CMP DATE 15.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT
79	12	11	16514	N12 E57	154	100	2.0
79	12	12	16514	N10 E40	155	100	1.5
79	12	14	16514	N09 E16	155	200	3.0
79	12	15	16514	N09 E01	157	200	3.5
79	12	16	16514	N09 W13	158	600	3.0
79	12	17	16514	N09 W26	157	1200	3.5
79	12	18	16514	N10 W38	156	1300	4.5
79	12	19	16514				
79	12	20	16514	N08 W66	159	1000	3.0
79	12	22	16514	N12 W76	143	300	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
21157	N08 E02		(B)	3				
21157	N09 W12		(BY)	3				
21157	N10 W26		(B)	4				
21157	N09 W38		(BY)	4				
21157	N10 W53		(B)	4	R	248	11	DAO
21157	N10 W63		(B)	4				

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HALE REGION 16519 CMP DATE 16.0

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	14	16519	S16 E15	156	300	1.5							
79	12	15	16519	S16 E03	155	300	2.5							
79	12	16	16519	S16 W15	160	600	1.5							
79	12	17	16519	S16 W28	159	300	2.0							
79	12	18	16519	S14 W40	158	200	2.0							
79	12	20	16519	S15 W67	160	200	1.0							

HALE REGION 16512 CMP DATE 16.1 RETURN OF PART OF REGION 16431. ROTATION 5 AND 3

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	11	16512	S30 E56	155	300	2.0							
79	12	12	16512	S29 E37	158	300	2.5							
79	12	14	16512	S31 E16	155	500	2.5							
79	12	15	16512	S32 E04	154	800	3.0							
79	12	16	16512	S32 W09	154	800	3.0							
79	12	17	16512	S31 W21	152	800	3.0							
79	12	18	16512	S30 W33	151	600	3.0							
79	12	20	16512	S33 W58	151	600	1.5							

HALE REGION 16504 CMP DATE 16.4 RETURN OF PART OF REGION 16426 ROTATION 4

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	9	16504	N32 E72	165	900	1.5							
79	12	11	16504	N34 E55	156	2400	3.0							
79	12	12	16504	N34 E37	158	2900	3.0							
79	12	14	16504	N34 E19	152	4100	3.0							
79	12	15	16504	N34 E08	150	5900	3.5							
79	12	16	16504	N34 W07	152	5400	3.0							
79	12	17	16504	N34 W17	148	4500	3.0							
79	12	18	16504	N34 W29	147	3200	3.0							
79	12	20	16504	N35 W42	135	3500	3.0							
79	12	22	16504	N36 W60	125	1900	2.0							
79	12	24	16504	N32 W64	103	400	3.0	21168	N30 W67			AP	3	

HALE REGION 16520 CMP DATE 16.4

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	14	16520	S08 E21	150	100	2.0							
79	12	15	16520	S08 E08	150	100	2.0							

HALE REGION 16527 CMP DATE 16.5

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	15	16527	N10 E09	149	100	2.5							

HALE REGION 16521 CMP DATE 16.8

				CALCIUM	PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	14	16521	S15 E26	145	300	2.5							
79	12	15	16521	S14 E13	145	100	3.0							
79	12	16	16521	S15 E01	144	200	2.5							
79	12	17	16521	S15 W13	144	200	2.5							
79	12	18	16521	S13 W24	142	300	2.5							
79	12	20	16521	S15 W51	144	100	2.0							
79	12	21	16521						S18 W64			R	40	1 HRX

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HALE REGION 16531 CMP DATE 17.1

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	17	16531	S18 W09	140	100	2.0									

HALE REGION 16516 CMP DATE 17.4

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	10	16516					21144	S18 E85		(X)					
79	12	11	16516	S17 E73	138	900	4.0	21144	S18 E73		(B)	3				
79	12	12	16516	S17 E58	137	1600	3.5	21144	S18 E60		(B)	3				
79	12	13	16516					21144	S20 E49		(Y)	4				
79	12	14	16516	S20 E34	137	3200	4.5	21144	S21 E35		(GY)	4				
79	12	15	16516	S19 E21	137	2400	4.0	21144	S20 E23		(B)	5				
79	12	16	16516	S19 E08	137	3000	2.5	21144	S20 E08		(BP)	4				
79	12	17	16516	S19 W05	136	2500	4.0	21144	S18 W05		(B)	4				
79	12	18	16516	S20 W16	134	2700	4.0	21144	S19 W16		(BP)	4				
79	12	19	16516					21144	S18 W32		(BP)	4				
79	12	19	16516					21161	S25 W27		(AP)	3				
79	12	20	16516	S21 W42	135	1900	2.5	21144	S18 W48		(AP)	4				
79	12	20	16516					21161	S24 W39		(AP)	2				
79	12	22	16516	S21 W65	130	1300	3.0	21144	S18 W75		(AF)	3				

HALE REGION 16515 CMP DATE 17.6 RETURN OF REGION 16436 ROTATION 4

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	11	16515	N22 E76	135	500	1.5									
79	12	12	16515	N21 E66	129	600	1.5									
79	12	14	16515	N21 E40	131	1400	3.0									
79	12	15	16515	N21 E24	134	1000	2.5									
79	12	16	16515	N20 E11	134	600	3.0									
79	12	17	16515	N19 W06	137	600	2.5									
79	12	18	16515	N20 W14	132	800	2.0									
79	12	20	16515	N18 W45	138	700	2.5									
79	12	22	16515	N20 W65	130	500	2.5									

HALE REGION 16518 CMP DATE 17.8

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	12	16518	S12 W64	259	1100	2.0	21148	S13 E68		(AP)	2				
79	12	13	16518					21148	S13 E54		(BP)	4				
79	12	14	16518	S13 E38	133	1300	3.5	21148	S13 E40		(BP)	4				
79	12	15	16518	S13 E26	132	1000	4.0	21148	S13 E27		(BP)	4				
79	12	16	16518	S13 E13	132	900	3.5	21148	S13 E14		(B)	4				
79	12	17	16518	S13 E00	131	900	4.0	21148	S13 W04		(AP)	3				
79	12	18	16518	S13 W14	132	1100	3.5	21148	S13 W17		(AP)	3				
79	12	19	16518					21148	S13 W32		(BP)	3				
79	12	20	16518	S13 W38	131	800	3.0									
79	12	22	16518	S13 W64	129	900	2.5									

HALE REGION 16538 CMP DATE 18.1

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	16	16538	N10 E18	127	100	2.0									
79	12	17	16538	N10 E04	127	200	2.5									
79	12	18	16538	N12 W09	127	100	2.5									

HALE REGION 16522 CMP DATE 18.8

CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	14	16522	S07 E53	118	300	3.5	21156	S07 E55		(AF)	2				
79	12	15	16522	S07 E39	119	500	3.5	21156	S07 E43		(AP)	2				
79	12	16	16522	S07 E27	119	400	3.5	21156	S06 E26		AP					
79	12	17	16522	S07 E13	118	400	3.5	21156	S06 E13		(AP)	3				
79	12	18	16522	S07 W01	119	300	2.5									

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HALE REGION 16522 (CONT) CMP DATE 18.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	19	16522					21162	S07 W16	122	(B)	4				
79	12	20	16522	S07 W29	122	900	3.5	21162	S07 W28	122	(D)	4				
79	12	21	16522						S06 W44				R	250	5	DSO
79	12	22	16522	S06 W56	121	1300	3.5	21162	S06 W56	123	(BP)	4	H	120	10	DAO
79	12	23	16522					21162	S06 W70	124	(B)	4	H	330	7	DAO
79	12	24	16522	S07 W85	124	500	3.0	21162	S07 W75	119	AF	2				

HALE REGION 16523 CMP DATE 19.1 RETURN OF REGION 16437 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	14	16523	N26 E58	113	600	3.0									
79	12	15	16523	N26 E42	116	700	3.0									
79	12	16	16523	N26 E29	116	1000	3.0									
79	12	17	16523	N25 E15	116	1200	3.0									
79	12	18	16523	N25 E04	114	1100	2.5									
79	12	20	16523	N25 W26	119	900	2.5									
79	12	22	16523	N26 W48	113	900	3.0									

HALE REGION 16573 CMP DATE 19.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
80	1	04	16573	S05 W45		100	2.0	21186	S05 W42		(AP)	2				

HALE REGION 16524 CMP DATE 19.7 RETURN OF REGION 16438 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	14	16524	N18 E61	110	200	2.0									
79	12	15	16524	N16 E47	111	800	2.0									
79	12	16	16524	N16 E35	110	1800	2.5									
79	12	17	16524	N17 E23	108	1000	2.5									
79	12	18	16524	N17 E12	106	1500	2.5									
79	12	20	16524	N15 W15	108	1200	3.0									
79	12	22	16524	N16 W48	105	1000	3.0									
79	12	24	16524	N16 W65	104	300	1.5									

HALE REGION 16532 CMP DATE 19.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	17	16532	S09 E26	105	200	2.5									
79	12	18	16532	S08 E12	106	200	3.0									
79	12	20	16532	S10 W13	106	200	2.0									

HALE REGION 16533 CMP DATE 19.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	18	16533	S28 E18	100	100	2.5									
79	12	19	16533					21163	S31 E02	104	B	2				
79	12	20	16533	S30 W12	105	800	4.0	21163	S31 W11	105	(B)	3				
79	12	22	16533	S29 W37	102	1800	3.5	21163	S31 W36	103	(B)	4	H	150	13	DKO
79	12	23	16533					21163	S31 W48	102	(B)	4	H	190	7	DKO
79	12	24	16533	S30 W64	103	1300	3.0	21163	S31 W65	105	(AP)	4	H	190	4	DSO
79	12	25	16533						S30 W69				H	100	3	CSO

HALE REGION 16526 CMP DATE 20.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	14	16526	N24 E66	105	300	2.0									
79	12	15	16526	N24 E54	104	200	2.5									
79	12	16	16526	N23 E39	106	400	2.0									

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HALE REGION 16526 (CONT) CMP DATE 20.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	17	16526	N24 E26	105	300	2.5								
79	12	18	16526	N25 E19	99	200	2.5								

HALE REGION 16536 CMP DATE 20.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	20	16536	S11 W06	99	200	1.5								
79	12	22	16536	S11 W30	95	100	3.0								
79	12	24	16536	S12 W55	94	100	1.5								

HALE REGION 16525 CMP DATE 20.4 RETURN OF PARTS OF REGIONS 16439, 16442, 16460 ROTATIONS 5 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	14	16525	S17 E61	110	200	3.0								
79	12	15	16525	S17 E56	102	800	2.0								
79	12	16	16525	S18 E45	100	1500	2.5								
79	12	17	16525	S17 E32	99	1500	3.0								
79	12	18	16525	S17 E19	99	1100	3.0								
79	12	20	16525	S18 W05	98	2200	2.0								
79	12	22	16525	S19 W30	95	1500	3.0								
79	12	23	16525					21165	S20 W50		B	2	H	10	1 AXX
79	12	24	16525	S19 W56	97	900	3.5	21165	S21 W65		(AF)	3	H	10	2 BXO
79	12	25	16525						S20 W70				H	30	1 HRX

HALE REGION 16528 CMP DATE 21.0 RETURN OF REGION 16453 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	15	16528	N23 E66	90	800	2.0								
79	12	16	16528	N20 E56	89	900	3.0								
79	12	17	16528	N21 E39	92	500	3.0								
79	12	18	16528	N21 E30	88	900	2.5								
79	12	20	16528	N20 E04	89	1300	2.0								
79	12	22	16528	N21 W19	84	1200	3.0								
79	12	24	16528	N21 W45	84	800	2.0								
79	12	26	16528	N17 W70	83	400	1.5								

HALE REGION 16534 CMP DATE 21.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	18	16534	S27 E33	85	100	2.0								
79	12	20	16534	S26 E09	84	100	1.5								
79	12	22	16534	S29 W18	83	100	2.0								

HALE REGION 16529 CMP DATE 22.2 RETURN OF REGION 16443 ROTATIONS 3 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NN NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	12	15	16529	S14 E75	83	600	1.5								
79	12	16	16529	S15 E69	76	1000	4.0	21159	S16 E75		B	2			
79	12	17	16529	S15 E56	75	1400	3.5	21159	S16 E62		(B)	4			
79	12	18	16529	S15 E43	75	2200	4.5	21159	S15 E46		(B)	3			
79	12	19	16529					21159	S16 E36		(BY)	4			
79	12	20	16529	S15 E20	73	4500	4.0	21159	S16 E23		(BY)	4			
79	12	22	16529	S15 W07	72	4300	4.0	21159	S16 W04		(BY)	4			
79	12	23	16529					21159	S16 W18		(D)	4			
79	12	24	16529	S16 W34	73	4100	4.0	21159	S16 W31		(BY)	4			
79	12	26	16529	S16 W60	73	4400	3.0	21159	S17 W58		(BY)	3			
79	12	27	16529	S14 W72	72	4200	3.0	21159	S16 W66		(AF)	3			
79	12	28	16529	S17 W80	67	1200	3.5	21159	S18 W80		(AF)	2			

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HALE REGION 16537 CMP DATE 22.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	20	16537	S32 E21	72	400	2.0									
79	12	22	16537	S33 W04	69	300	3.0									
79	12	24	16537	S33 W32	71	200	1.5									

HALE REGION 16552 CMP DATE 23.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	26	16552	N19 W50	63	100	1.5									

HALE REGION 16551 CMP DATE 23.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	26	16551	S14 W43	56	100	2.5									
79	12	27	16551	S12 W57	57	200	2.5									
79	12	28	16551	S15 W70	57	100	1.5									

HALE REGION 16535 CMP DATE 24.5 RETURN OF REGION 16448 ROTATIONS 3 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	18	16535	N18 E75	43	200	1.5									
79	12	20	16535	N18 E45	48	1400	1.5									
79	12	22	16535	N21 E23	42	1100	3.0									
79	12	24	16535	N21 W03	42	1300	2.5									
79	12	26	16535	N21 W29	42	1100	2.0									
79	12	27	16535	N22 W38	38	700	2.0									
79	12	28	16535	N20 W50	37	700	2.5									
79	12	29	16535	N22 W63	37	500	2.5									
79	12	30	16535	N22 W78	38	200	2.0									

HALE REGION 16538 CMP DATE 25.4 RETURN OF REGION 16450 ROTATION 7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	20	16538	N13 E60	33	500	2.0									
79	12	22	16538	N13 E35	30	1000	3.0									
79	12	24	16538	N13 E08	31	1000	2.5									
79	12	26	16538	N13 W16	29	1400	2.0									
79	12	27	16538	N15 W30	30	1100	2.0									
79	12	28	16538	N10 W43	30	1100	2.5									
79	12	29	16538	N11 W59	33	600	2.5									
79	12	30	16538	N13 W78	38	200	2.0									

HALE REGION 16539 CMP DATE 25.7 RETURN OF REGION 16469 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	20	16539	S13 E72	21	1400	3.5									
79	12	22	16539	S13 E38	27	600	3.0									
79	12	23	16539					21166	S13 E26	28	(AP)	4				
79	12	24	16539	S13 E12	27	700	3.0	21166	S12 E13	27	(AP)	3				
79	12	26	16539	S13 W13	26	800	3.0	21166	S12 W15	30	(AP)	2	H	80	4	DSO
79	12	27	16539	S12 W26	26	700	3.5	21166	S15 W20	21	(AP)	3				
79	12	28	16539	S13 W38	25	500	3.5	21166	S15 W36	25	(AP)	3	H	30	3	CRO
79	12	29	16539	S13 W53	27	600	3.0	21166	S14 W50	25	(AP)	3				
79	12	30	16539	S12 W68	28	100	2.5	21166	S15 W60	22	B	3				
79	12	31	16539					21166	S14 W77	26	BP	1				
80	1	1	16539	S18 W78		400	2.5	21166	S15 W85		(AP)	1				

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HALE REGION 16544 CMP DATE 26.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	24	16544	N33 E16	21	100	2.0										
79	12	26	16544	N35 W06	21	100	1.5										

HALE REGION 16541 CMP DATE 26.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	20	16541						21164	S14 E77	17	(AP)	3				
79	12	22	16541	S14 E48	17	2300	3.5		21164	S14 E47	20	(BY)	4				
79	12	23	16541						21164	S15 E38	16	(BY)	4				
79	12	24	16541	S14 E22	17	2400	3.5		21164	S14 E25	15	(B)	4				
79	12	26	16541	S14 W02	15	2500	3.5		21164	S15 W02	17	(BY)	3	H	200	22	EKI
79	12	27	16541	S14 W15	15	3000	3.5		21164	S17 W10	11	(BF)	2				
79	12	28	16541	S16 W26	15	2600	3.5		21164	S17 W24	13	(AF)	3	H	50	4	CSO
79	12	29	16541	S16 W43	17	2100	3.5		21164	S18 W37	12	(AF)	2				
79	12	30	16541	S16 W56	18	1900	3.0		21164	S18 W50	12	AF	2				
79	12	31	16541	S15 W72	18	700	3.0										
80	1	1	16541	S18 W76	12	400	2.5										

HALE REGION 16540 CMP DATE 26.7 RETURN OF PART OF REGION 16451 ROTATION 7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	20	16540	N28 E80	13	300	2.0										
79	12	22	16540	N25 E54	11	800	2.5										
79	12	24	16540	N23 E26	13	600	2.5										
79	12	26	16540	N23 W01	14	1200	2.5										
79	12	27	16540	N24 W13	13	800	3.0										
79	12	28	16540	N23 W28	15	500	3.0										
79	12	29	16540	N23 W42	16	400	3.0										
79	12	30	16540	N23 W55	15	400	2.0										
79	12	31	16540	N24 W70	16	300	2.0										

HALE REGION 16559 CMP DATE 26.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	28	16559	N10 W26	13	100	2.5										
79	12	29	16559	N10 W30	4	100	2.5										

HALE REGION 16545 CMP DATE 27.2 RETURN OF PART OF REGION 16452 ROTATION 7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	24	16545	N12 E32	7	100	2.0										
79	12	26	16545	N13 E06	7	300	2.5										
79	12	27	16545	N13 W08	8	100	2.0										
79	12	28	16545	N11 W23	10	100	2.5										
79	12	29	16545	N11 W37	11	200	3.5		21173	N13 W36	11	(B)	2				
79	12	30	16545	N11 W54	14	600	2.5		21173	N13 W50	12	B	3				
79	12	31	16545	N12 W68	14	800	3.0		21173	N13 W63	12	B	3				
80	1	01	16545	N12 W75		600	2.5		21173	N12 W74		B	2	B	40	3	C

HALE REGION 16546 CMP DATE 27.7 RETURN OF PART OF REGION 16451 ROTATION 7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	24	16546	N24 E38	1	400	2.0										
79	12	26	16546	N24 E12	1	400	2.5										
79	12	27	16546	N24 W01	1	500	2.0										
79	12	28	16546	N22 W13	0	300	2.5										
79	12	29	16546	N22 W26	0	100	2.0										
79	12	30	16546	N22 W42	2	200	2.5										
79	12	31	16546	N22 W58	4	100	1.5										

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HALE REGION 16542 CMP DATE 28.6 RETURN OF REGIONS 16455 AND 16456 ROTATION 5 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	22	16542	S13 E67	359	200	2.0							
79	12	24	16542	S13 E39	0	300	2.0							
79	12	26	16542	S16 E21	353	800	2.0							
79	12	27	16542	S16 E11	350	1000	2.0							
79	12	28	16542	S16 W04	351	1100	2.5	21170	S09 E08		(AP)	2		
79	12	29	16542	S16 W18	352	800	2.5							
79	12	30	16542	S16 W32	352	600	2.5							
79	12	31	16542	S15 W45	351	300	1.0							
80	1	1	16542	S15 W55	349	300	1.0							

HALE REGION 16543 CMP DATE 28.7 RETURN OF REGION 16463 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	22	16543	N12 E79	347	300	2.0							
79	12	24	16543	N12 E54	346	600	2.5							
79	12	26	16543	N12 E26	348	700	3.0							
79	12	27	16543	N12 E13	348	900	2.5							
79	12	28	16543	N12 W02	349	800	3.0							
79	12	29	16543	N11 W14	348	300	3.0							
79	12	30	16543	N11 W28	348	200	3.0							
79	12	31	16543	N12 W44	350	300	2.5							
80	1	1	16543	N12 W54	348	200	2.5							

HALE REGION 16553 CMP DATE 29.0

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	26	16553	N05 E29	345	100	2.0							
79	12	27	16553	N05 E17	344	100	2.0							
79	12	28	16553	N05 E03	344	100	1.5							

HALE REGION 16549 CMP DATE 29.2 RETURN OF PART OF REGION 16457 ROTATIONS 6 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	24	16549	N15 E59	341	100	1.5							
79	12	26	16549	N17 E34	340	200	2.0							
79	12	27	16549	N16 E20	341	200	2.5							
79	12	28	16549	N16 E06	341	300	2.0							
79	12	29	16549	N16 W06	340	200	2.5							
79	12	30	16549	N16 W22	342	100	1.5							
79	12	31	16549	N16 W37	343	100	2.0							
80	1	1	16549	N16 W46	340	100	2.0							
80	1	02	16549					21182	N28 W60		(B)	3		

HALE REGION 16547 CMP DATE 29.6

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	24	16547	S25 E58	342	300	1.5							
79	12	26	16547	S24 E32	342	500	2.5							
79	12	27	16547	S26 E24	337	600	2.5							
79	12	28	16547	S26 E11	336	900	3.0							
79	12	29	16547	S27 E02	332	600	2.5							
79	12	30	16547	S26 W17	337	500	2.5							
79	12	31	16547	S25 W34	340	200	2.0							
80	1	1	16547	S23 W50	344	200	1.5							

HALE REGION 16550 CMP DATE 30.4 RETURN OF PART OF REGION 16457 ROTATIONS 6 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA						
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	12	24	16550	N17 E73	327	300	1.5							
79	12	26	16550	N17 E48	326	700	2.0							
79	12	27	16550	N17 E35	326	700	2.5							
79	12	28	16550	N17 E21	326	800	2.5							

CONTD

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HALE REGION 16558 (CONT)

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	29	16558	N17 E08	326	400	3.0									
79	12	30	16558	N17 W08	328	500	2.5									
79	12	31	16558	N17 W21	327	500	2.5									
80	1	1	16558	N16 W32	326	800	2.5									
80	1	4	16558	N18 W70	324	200	2.5									

HALE REGION 16548 CMP DATE 30.7 RETURN OF REGIONS 16458, 16459, 16472 ROTATIONS 2 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	24	16548	S15 E70	330	1400	2.0	21167	S15 E78	323	AP	2				
79	12	26	16548	S16 E47	327	3900	3.0	21167	S13 E51	325	(BF)	3	H	90	6	DAO
79	12	26	16548					21169	S24 E53		(AP)	2				
79	12	27	16548	S16 E36	325	4500	3.5	21167	S15 E39	323	(BF)	3				
79	12	27	16548					21169	S24 E40		(BP)	2				
79	12	28	16548	S18 E25	322	4600	4.0	21167	S15 E25	324	(B)	4	H	190	22	DAI
79	12	28	16548					21169	S24 E25		(B)	3				
79	12	29	16548	S18 E12	322	4600	3.5	21167	S15 E13	322	(D)	4				
79	12	29	16548					21169	S24 E14		(BP)	4				
79	12	30	16548	S16 W05	325	5500	3.0	21167	S15 W03	325	B	3				
79	12	30	16548					21169	S24 W02		BP	4				
79	12	31	16548	S17 W18	324	4000	3.5	21167	S15 W15	324	B	3				
79	12	31	16548					21169	S24 W14		BP	3				
80	1	1	16548	S17 W29	323	4100	3.5	21169	S24 W29	325	(AP)	4				
80	1	2	16548					21169	S24 W43	325	(AP)	4				
80	1		16548					21169	S24 W43		(AP)	4	B	70	1	H
80	1	3	16548					21169	S25 W56	324	B	3				
80	1	4	16548	S20 W65	319	2400	3.0	21169	S24 W69	325	(AP)	3				
80	1	5	16548	S20 W76	318	1100	3.0	21169	S24 W85	326	AP	1				

HALE REGION 16560 CMP DATE 31.4 RETURN OF PART OF REGIONS 16461 AND 16473 ROTATION 4, 6 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	12	29	16560	N23 E25	309	200	2.0									
79	12	30	16560	N24 E07	313	300	2.5									
79	12	31	16560	N25 W05		200	1.5									
80	1	1	16560	N25 W17	311	200	2.0									

NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT MT. WILSON OBSERVATORY ON DEC 2, 10, 13, 19, 21, 23 and 25, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON DEC 21 and 25, 1979.

REGION 16471 is a new plage, in the location of the leading portion of old plage 16405 of the previous rotation.
REGION 16457 is the return of the leading part of 16406.
REGION 16473 is the return of the trailing part of 16406.
REGION 16466 is a new plage, near the location of old plage 16408 of the previous rotation.
REGION 16508 is a new plage, in the location of old plage 16415 of the previous rotation.
REGION 16485 is the return of the leading part of 16419A.
REGION 16486 is the return of the northern part of 16421.
REGION 16489 is the return of the leading part of 16419B.
REGION 16492 is a new plage, near the location of old plage 16423.
REGION 16499 is the return of the trailing portion of plage 16421.
REGION 16501 is the return of the northern part of 16425.
REGION 16516 is a new plage, near the location of old plage 16435.

CONTIGUOUS PLAGES, DEC 1979

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astronomy QB1.U57
N0428, pt2

APRIL 1980 NUMBER 428 -- Part II

Solar-Geophysical Data comprehensive reports

Data for October 1979 & Miscellanea

Explanation of Data Reports Issued as Number 426 (Supplement) February 1980

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DATA FOR
OCTOBER 1979

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SOLAR-GEOPHYSICAL DATA

No. 428

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Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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DETAILED COVERAGE FOR 1979-80 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1979 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1980 Jan	Feb	Mar
A.	SOLAR AND INTERPLANETARY PHENOMENA												
A.1	Sunspot Drawings	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10
A.2b	Zurich Final Sunspot Numbers Rz	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9	428A 9			
A.2c	American Relative Sunspot Numbers RA	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10
A.3a	Mt. Wilson Magnetograms	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	418A108	419A110	420A110	421A112	422A 11	423A110	424A112	425A108	426A150	427A112	428A102	
A.3c	Kitt Peak Magnetograms	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.3d	Mean Solar Magnetic Field (Stanford)	417A 36	418A 38	419A 38	420A 40	421A 40	422A 42	423A 40	424A 40	425A 36	426A 38	427A 38	428A 34
A.3e	Stanford Magnetograms	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.4	H-alpha Filtergrams	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.5	Calcium Plage Drawings - Mt. Wilson	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	418A108	419A110	420A110	421A112	422A114	423A110	424A112	425A108	426A150	427A112	428A102	
A.5b	Mt. Wilson Daily Calcium Plage Indices	418A118	419A123	420A121	421A125	422A129	423A124	424A125	425A121	426A112	427A122	428A112	
A.6	H-alpha Synoptic Charts	418A 42	419A 43	420A 44	421A 44	422A 46	423A 44	424A 44	425A 40	426A 42	427A 42	428A 38	
A.6b	Synoptic Chart and Active Regions (Paris)	426B 38	426B 39	426B 40	426B 41	427B 48							
A.6c	Stanford Solar Magnetic Field Synoptic Charts	418A 43	419A 44	420A 46	421A 46	422A 48	423A 46	424A 46	425A 42	426A 44	427A 44	428A 40	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	418A 45	419A 45	420A 48	421A 48	422A 50	423A 48	424A 48	425A 44	426A 46	427A 46	428A 42	
A.7f	Helium D3 Chromosphere (Big Bear)	417A 33	418A 34	419A 34	420A 35	421A 37	422A 38	423A 41	425B 28	425A 37	426A 39	427A 39	428A 35
A.7g	Helium Synoptic Maps (KPNO)	417A 32	418A 33	419A 33	420A 34	421A 36	423B 75	425A 46	425A 47	426A 48	427A 48		
A.7h	Coronal Line Emission (Sac Peak)	418A 48	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	417A 9	418A 11	419A 11	420A 11	421A 11	422A 11	423A 11	424A 11	425A 11	426A 10	427A 9	428A 10
A.9ch	8.6 cm Radio Maps of the Sun (NOSC - La Posta)	---	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	---	419A 48	420A 50	421A 50	422A 52	423A 50	424A 50	425A 48	426A 50	427A 50	428A 44	
A.10a	169 MHz - Interferometric Observations (Nancay)	417A 21	419B 52	420B 69	420A 24	422B 85	422A 25	423A 27	424A 25	426A148	426A 23	427A 23	428A 20
A.10c	21 cm East-West Solar Scans (Fleurs)	417A 24	418A 25	420B 70	420A 27	421A 26	422A 23	423A 30	424A 28	425A 27	426A 26	427A 26	
A.10d	43 cm East-West Solar Scans (Fleurs)	417A 25	418A 26	420B 71	420A 28	421A 29	422A 29	423A 31	424A 29	425A 28	426A 27	427A 27	
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	417A 23	418A 24	419A 26	420A 26	421A 27	422A 27	423A 29	424A 27	425A 26	426A 25	427A 25	428A 22
A.10f	3 cm East-West Solar Scans (Toyokawa)	417A 22	418A 23	419A 25	420A 25	421A 26	422A 26	423A 28	424A 26	425A 25	426A 24	427A 24	428A 21
A.11k	Solar X-ray Radiation (SOLRAD 11)	418A122	419A126	420A124	421A129	422A133	423A128	426A158	---	---	---	---	---
A.11g	Solar X-ray (SMS/GOES) (graphs)	422B 31	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28
A.12e	Energetic Solar Particles (IMP H & J)	422B 26	424B 40	427B 37	426B 33	427B 42							
A.13a	Solar Wind (Pioneers 6 & 7)	---	---	---	---	---	---	---	---	---	---	427A 32	428A 27
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28
A.13d	Solar Wind from IPS Measurements	417A 37	418A 35	419A 35	420A 37	422B 89	422A 39	424B 36	424A 37	426A146	426A 34	427A 35	428A 30
A.13e	Solar Plasma (IMP H & J)	422B 25	423B 17	424B 28	425B 19	426B 23	427B 27	428B 23					
A.13f	Solar Wind (Pioneer 12 (Venus))	417A 31	418A 32	419A 32	420A 36	421A 35	422A 37	423A 37	424A 36	425A 32	426A 33	427A 34	428A 29
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28
A.17	Interplanetary Magnetic Field (Pioneer 12)						423B 73	424B 38	425B 29	426A116			
A.17c	Inferred Magnetic Field	417A 34	418A 36	419A 36	420A 38	421A 38	422A 40	423A 38	424A 38	425A 34	426A 36	427A 36	428A 32
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	424B 39	---	---	---	426A 32	427A 33	428A 28
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA												
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B.53	Quality Figures Based on Frequency Ranges	418A165	419A167	420A168	421A165	422A180	423A173	424A153	425A151	426A141	427A153	428A139	
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C.1ba	Optical Observations Flares (Standardized Data)												
C.1d	Flare Patrol Observations	417A 20	418A 23	419A 24	420A 23	421A 25	423B 72	423A 26	424A 24	425A 24	427A158	427A 22	
C.1d	Flare Patrol Observations												
C.1e	Flare Indices (by day)												
C.1f	Flare Indices (by Region)												
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	Solar Radio Waves - Fixed Frequencies - Selected	417A 26	418A 28	419A 27	420A 29	421A 30	422A 30	423A 32	424A 30	425A 29	426A 28	427A 28	428A 23
C.3t	43.25, 80 and 160 MHz Selected Bursts (Culgoora)												
C.4a	Solar Radio Spectral Obs. (Fort Davis)	420B 72	420B 75	420A139	423B 76	423B 78	423A143	426A149	426A153	426A117	427A126	428A116	
C.4d	Solar Radio Spectral Obs. (Culgoora)	418A137	419A142	420A139	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	
C.4e	Solar Radio Spectral Obs. (Weissenau)	418A137	419A142	420A139	422B 86	422A149	423A143	424A130	425A125	426A117	427A126	428A116	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	418A137	419A142	420A139	421A145	---	---	---	---	---	---	---	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	418A137	419A142	---	421A145	422A149	423A143	424A130	425A125	426A117	427A126	428A116	
C.4i	Solar Radio Spectral Obs. (Bleien)	418A137	419A142	---	---	422A149	423A143	424A130	425A125	426A117	427A126	428A116	
C.4j	Solar Radio Spectral Obs. (Manila)	418A137	419A142	420A139	421A145	422A149	---	424A130	425A125	426A117	427A126	---	
C.4k	Solar Radio Spectral Obs. (Learmonth)					422A149	423A143		425A125		427A126	428A116	
C.4l	Solar Radio Spectral Obs. (Palehua)					422A149	423A143		425A125		427A126	428A116	
C.5e	Solar X-ray (SMS/GOES) (graphs)	422B 31	423B 17	424B 29	425B 20	426B 24	427B 28	428B 24					
C.6	Sudden Ionospheric Disturbances	418A119	419A124	420A122	421A126	422A130	423A125	424A126	425A122	426A113	427A123	428A113	
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D.1ba	27-day Chart of Kp Indices	418A160	419A162	420A162	421A161	422A172	423A168	424A149	425A146	426A135	427A150	428A137	
D.1c	27-day Chart of C9	426A136	426A136	426A136	426A136	426A136	426A136	426A136	426A136	426A136			
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D.1d	Principal Magnetic Storms	418A163	419A165	420A165	421A164	422A175	423A171	424A152	425A149	426A140	427A151	428A138	
D.1e	Reduced Magnetograms												
D.1f	Sudden Commencement and Solar Flare Effects	419B 63	419A166	421B 42	422B 90	422A177	423A172	425B 33	425A150	427A164	427A152		
D.1g	Equatorial Indices Dst	418A162	419A164	420A164	421A163	422A174	423A170	424A151	425A148	426A139	428A147		
D.1h	Geomagnetic Substorm Log (Boulder)	417A 38	418A 39	419A 39	420A 41	421A 41	422A 43	423A 42	424A 41	425A 38	426A 40	427A 40	428A 36
F.	COSMIC RAYS												
F.1a	Cosmic Ray Neutron Counts (Deep River)	418A151	419A153	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146		
F.1b	Cosmic Ray Neutron Counts (Climax)	418A151	419A153	420A155	421A158	422A165	423A161	425B 32	425A143	426A132	428A146		
F.1e	Cosmic Ray Neutron Counts (Alert)	418A151	420B 78	420A155	421A158	422A165	423A161	425B 32	427A159	427A159	428A146		
F.1f	Cosmic Ray Neutron Counts (Calgary)												
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419A153	420A155	421A158	422A165	423A161	424A146	425A143	426A132	427A147	428A134	
F.1i	Cosmic Ray Neutron Counts (Kiel)	418A151	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	418A151	419A153	420A155	421A158	422A165	423A161	427A159	425A143	426A132	427A147	428A134	
F.1k	Cosmic Ray Neutron Counts (Kula)										---	---	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	419B 58	420B 79	420A155	421A158	423B 81	425B 32	425B 32	426A177	427A159	428A146		
H.	MISCELLANEOUS												
H.60	IUWDS Alert Decisions	417A 4	418A 5	419A 5	420A 5	421A 5	422A 4	423A 4	424A 4	425A 4	426A 4	427A 4	428A 4
H.62	Abbreviated Calendar Record												

Notes:

"418A 48" listed under 1979 Apr means that the sunspot drawings for April 1979 were contained in *Solar-Geophysical Data* Number 418 - Part I, beginning on page 48.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 428 Part II (Comprehensive)

OCTOBER 1979 DATA

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NOTE ON SOLAR FLARE DATA DELAY:

Solar Flare data for publication are now over a year delayed from date of observation, rather than the usual six months. Several problems have caused this delay. A basic step of flare processing is using the Carte Synoptique de la Chromosphere to identify active centers. Because these Carte Synoptique data are also currently delayed, the Meudon Observatory staff, who performs this analysis, are hindered in their efforts. Meudon is also changing to another computer, which can mean computer program conversion problems that can delay the work. NGSDC is also working on some conversion problems.

A delay in the final listing of the solar flare data also delays the Daily Flare Index, the Regional Flare Index and the Abbreviated Calendar Record. We deeply regret this situation and hope it will improve in the near future. We ask for your patience in the interim.

For researchers who need the solar flare data more promptly, NGSDC has available "Preliminary" final listings of solar flares for April-August 1979. These fairly complete listings do not have the final Meudon corrections, and thus will not be published until we receive these corrections. However, they are available on request with the stipulation that they are recognized as "Preliminary" final listings when used in research projects. A fee may be charged for reproducing these data if a large demand ensues. Please contact the editor, Helen Coffey, for copies of these listings (phone: (303) 499-1000 X6223; FTS: 323-6223; Telex: SOLTERWARN BLDR 45897.)

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

OCTOBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	202	IZMI 44 NS		0600.0E		360.0D	60			
	127	TORN 44 NS		0630.0E	1224.2	550.0D	940	10		V2
	113	POTS 44 NS		0632.0E	1006	332.0D	28			
	260	ONDR 44 NS		0710.0E		539.0D	104	14		
	536	ONDR 44 NS		0720.0E		368.0D	22			
	200	HIRA 44 NS		2029.0E	0340	710.0D	240	95		ML
	100	HIRA 44 NS		2032.0E	2203	230.0D	35	9		SL
	5730	IRKU 1 S		0143.0	0143.7	3.5	35			L
	3100	CRIM 3 S		0554.0	0556.0	3.0	35	12		
	5730	IRKU 2 S		0555.3	0556.7	3.5	100			L
	9100	GORK 21 GRF		0555.7	0602.9	21.0	20	7.5		
	9100	GORK 2 S/F		0556.1	0556.9	1.4	26	12		
	6100	KISV 45 C		0617.5	0618.3	13.0	90			
	6100	KISV		0617.5	0625.5		50			
	6100	KISV 26 FAL		0630.0	0720		9			
	113	POTS 4 S/F		0650.6	0650.8	.3	200	40		
	33	UPIC 42 SER		0650.6	0650.6	125.2				
	29	UPIC 42 SER		0650.7	0650.8	125.1				
	6100	KISV 8 S		0654.5	0655.5	2.0	9			
	6100	KISV 4 S/F		0720.0	0724.7	10.0	65			
	10400	BERN 3		0722.2	0724.3	7.0	39.0			
	8400	BERN 3		0722.2	0724.3	7.0	63.0			
	3100	CRIM 3 S		0722.5	0724.5	6.0	59	20		
	5730	IRKU 2 S		0723.0U	0725	8.0	150			L
	3000	POTS 3 S		0723.0	0724.8	6.5	36			
	10715	DWIN 1 S		0723.0	0724	6.0	20	10		
	9100	GORK 21 GRF		0723.0	0726.7	46.0	16	6		
	15000	KISV 20 GRF		0723.0	0725	5.0	16			
	2650	DWIN 1 S		0723.0	0724	7.0	25	15		
	8800	MANI 3 S		0723.1	0724.8	3.9	42.4	14.1		
	4995	MANI 3 S		0723.3	0724.6	4.7	69.9	23.3		
	9100	GORK 3 S		0723.3	0724.6	3.1	50	21		
	9500	POTS 3 S		0723.5	0724.9	5.5	45			
	3100	CRIM 26 FAL		0728.5	0924.5	100.0	8	3		
	6100	KISV 26 FAL		0730.0	0830		13			
	6100	KISV		0753.0	0753.5		4			
	6100	KISV 45 C		0753.0	0757.7	17.0	9			
	9100	GORK 1 S		0757.9	0758.8	4.2	7	3.5		
	650	GORK 22 GRF		0806.0	0820.5	63.7	6			
	9100	GORK 1 S		0839.9	0840.4	1.4	7	3		
	8400	BERN 3		0844.1	0846.0	7.0	39.0			
	9100	GORK 21 GRF		0844.3	0847.1	9.5	16	6.3		
	5730	IRKU 2 S		0845.0	0846.0	4.0	76			L
	9500	POTS 3 S		0845.0	0846.0	5.0	26			
	9100	GORK 2 S/F		0845.5	0846.0	1.3	24	11		
	10400	BERN 3		0846.0	0846.0	7.0	20.0			
	9100	GORK 1 S		0859.5	0900.4	1.9	7	3.5		
	3100	CRIM 1 S		0909.0	0910.0	2.0	13	4		
	3100	CRIM 29 PBI		0911.0	0911.0		3			
	9100	GORK 21 GRF		0916.9	0922.8	40.0	39	13		
	2650	DWIN 8 S		0917.0			70			
	5730	IRKU 2 S		0917.0	0917.7	3.0	55			L
	9100	GORK 1 S		0917.3	0917.8	.7	8	5		
	650	GORK 20 GRF		0918.4	0943.2	50.0	4.5			
	10400	BERN 4		0920.7	0921.8	37.0	70.0			
	8400	BERN 4		0920.7	0921.8	37.0	111.0			
	5730	IRKU		0921.0	0921.8		205			L
	15000	KISV 45 C		0921.0	0922	2.0	45			
	9500	POTS 29 PBI		0921.0	0921.8	34.0	95			
	5730	IRKU 45 C		0921.0	0921.5	7.0	405			L
	10715	DWIN 4 S/F		0921.0	0922	30.0	60	15		
	9100	GORK 4 S/F		0921.1	0921.9	1.7	90	53		
	10400	BERN 41		0929.7	0937.0	17.0	10.0			
	8400	BERN 41		0929.7	0937.4	17.0	20.0			
	8400	BERN 20		0958.2	1000.6	60.0	29.0			
	10400	BERN 20		0958.2	1000.6	60.0	11.0			
	29	UPIC 41 F		1033.5	1034.5	10.1				
	33	UPIC 41 F		1036.2	1036.2U	7.0				
	7000	SAOP 4 S/F		1132.0	1135.5	4.4	257.0			12L
	9100	GORK 21 GRF		1133.1	1139.5	47.0	20	6		
	8400	BERN 3		1133.2	1135.4	58.0	266.0			
	10400	BERN 3		1133.2	1135.4	58.0	216.0			
	9400	HUAN S		1133.8	1135.4	7.4	304.0	76.1		L
	3100	CRIM 1 S		1134.0	1135.5	4.0	20	7		
	10715	DWIN 3 S		1134.0	1135	7.0	160	80		
	9500	POTS 29 PBI		1134.5	1135.1	31.0	269			
	9100	GORK 3 S		1134.6	1136.4	4.9	63			
	15000	KISV 8 S		1134.7	1135.5	5.0	140			
	33	UPIC 45 C		1146.7	1146.8	1.5				
	29	UPIC 45 C		1146.8	1147.6	1.3				
	2800	OTTA 20 GRF		1240.0	1500	225.0	9.0	4.5		
	234	POTS 8 S		1248.5	1248.7	.5	280	45		
	10400	BERN 1		1307.3	1308.5	5.0	7.0			
	8400	BERN 1		1307.3	1308.6	5.0	17.0			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

OCTOBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
01	7000	SAOP	45	C	1307.8	1308.5	1.7	15.0			13L 2 PARTS
	9400	HUAN		S	1321.0	1431.0	107.4	10.2	5.8		L
	9400	HUAN		S	1512.1	1529.4	26.0	5.1	3.4		O
	9400	HUAN		S	1605.5	1610.8	22.3	6.8	2.3		O
	7000	SAOP	45	C	1635.0	1647.2	22.4	24.0			11L
	7000	SAOP	41	F	1635.0						3 BURSTS
	9400	HUAN		S	1646.1	1646.8	1.5	8.5	4.1		O
	9400	HUAN		S	1654.6	1655.0	2.0	10.2	7.4		L
	9400	HUAN		S	1718.4	1719.6	2.4	8.5	4.6		O
	7000	SAOP	2	S/F	1718.4	1719.5	3.4	9.0			O
	2800	OTTA	21	GRF	1735.0	1935	245.0	12.2	6.8		
	7000	SAOP	45	C	1735.0	1741.3	17.0	36.0			18L
	9400	HUAN		S	1738.5	1748.7	18.2	6.8	3.4		L
	4995	BOUL	4	SF	1739.0	1740	4.0	16.0	5.0		
	9400	HUAN		S	1740.4	1741.3	3.2	22.2	11.2		L
	4995	BOUL	4	SF	1755.0	1800	12.0	12.0	4.0		
	2800	OTTA	27	RF	1756.0		12.0	4.8	4.2		
	2800	OTTA	24	R	1756.0	1757	1.0	4.8	2.4		
	2800	OTTA	24P	R	1757.0		9.0	4.8			
	9400	HUAN		S	1800.6	1832.4	55.7	23.9	13.7		L
	2800	OTTA	26	FAL	1806.0	1808	2.0	-4.8	-2.4		
	4995	BOUL	4	SF	1826.5	1827.5	3.0	10.0	3.0		
	2800	OTTA	3	S	1830.0	1833	12.0	16.4	5.4		
	1420	BOUL	4	SF	1845.0E	1846	2.0D	27.0	9.0		
	2800	OTTA	8	S	1846.0	1846	.1	21.0			
	2800	OTTA	1	S	1924.0	1926	6.0	4.2	2.1		
	4995	BOUL	4	SF	2108.0	2110	3.0	34.0	11.0		
	9400	HUAN		S	2130.6	2131.7	1.9	39.3	17.6		L
	9400	HUAN		PBI	2132.5	2132.5	13.0	6.8	4.9		L
	2695	PENT	20	GRF	2225.0	2300	70.0	3.2			
02	127	TORN	44	NS	0600.0E	0727.0	202.0D	2030	8		V1
	260	ONDR	44	NS	0730.0E		459.0D	23	4		
	200	HIRA	44	NS	2030.0E	2235	710.0D	20	5		WL,WR
	950	GORK	2	S/F	0625.1	0625.5	.7	24			
	9100	GORK	8	S	0626.5	0626.8	.5	40	27		
	9100	GORK	1	S	0936.0	0937.0	2.1	12	4.5		
	3100	CRIM	3	S	0936.0	0936.5	2.0	30	10		
	1470	POTS	4	S/F	0936.5	0937.5	2.2	33			
	9500	POTS	1	S	0936.5	0937.0	1.0	10			
	930	BORD	41	F	0936.7	0937	3.0	21	3		
	6100	KISV	8	S	0936.8	0937	1.0	12			
	3000	POTS	8	S	0936.9	0937.0	.6	23			
	2650	DWIN	1	S	0937.0	0937	1.0	15	10		
	9100	GORK	21	GRF	0938.5	1014.1	170.0	21			
	9100	GORK	1	S	0939.2	0940.3	2.7	7	4		
	6100	KISV	3	S	0959.0	1000.5	8.0	18			
	3100	CRIM	1	S	0959.0	1000.5	3.0	6	2		
	9100	GORK	1	S	0959.5	1008.0	2.9	15	7		
	3100	CRIM	29	PBI	1002.0	1002.0	12.0	3			
	29	UPIC	3	S	1005.9	1006	.4				
	33	UPIC	4	S/F	1006.0	1006	.5				
	9400	HUAN		S	1250.5	1320.4	38.5	11.7	6.1		L
	7000	SAOP	20	GRF	1314.0	1315.4		6.0			33L 2 PARTS
	9400	HUAN		S	1337.1	1403.2	44.3	6.7	3.0		O
	7000	SAOP	4	S/F	1400.8	1403.5	3.4	10.0			13R
	808	ONDR	2	S/F	1402.4	1403.7	1.5	15			
	536	ONDR	4	S/F	1403.0	1403.4	2.0	52	3		
	808	ONDR	46	C	1424.0	1452.5	32.0	20	5		
	2800	OTTA	40	F	1427.0	1433	7.0	41.4			
	2800	OTTA	21	GRF	1435.0	1517	95.0	8.8	4.4		
	2650	DWIN	31	GRF	1440.0	1452	23.0	30	20		
	536	ONDR	46	C	1441.5	1457.5	18.0	21	8		
	1470	POTS	23	GRF	1441.5	1452.0	24.0	49			
	2800	OTTA	46F	C	1442.0	1451.5	24.0	25.0	10.8		
	3000	POTS	23	GRF	1442.0	1451.5	19.0	25			
	930	BORD	40	F	1442.0	1451.8	20.0	31	9		
	9500	POTS	20	GRF	1444.0	1453.5	26.0	8.6			
	228	HARS	45	C	1445.0	1445.6	5.3	75	15		
	9400	HUAN		S	1447.4	1516.7	57.8	8.4	6.3		L
	2800	OTTA	20	GRF	1710.0	1800	115.0	6.8	3.4		
	9400	HUAN		S	1730.8	1757.8	58.5	10.0	3.5		O
	7000	SAOP	1	S	1801.4	1802.7		8.0			35L
	9400	HUAN		S	1927.6	1929.4	2.8	13.4	4.3		L
	7000	SAOP	4	S/F	1928.0	1929.3	5.8	16.0			34L
	2800	OTTA	240	R	2005.0	2020	15.0	3.6	1.8		
	2695	PENT	21	GRF	2150.0	2205	135.0	13.8	6.9		
	500	HIRA	46	C	2154.0	2201.1	17.0	80	30		ML
	700	SYDN	27	RF	2154.3E	2157.2	14.7D				
	1400	SYDN	45	C	2154.3E	2206.1	18.1D				
	2800	OTTA	40	F	2159.8	2200.2	2.0	113.0			
03	260	ONDR	44	NS	0820.0E		410.0D	11			
	200	HIRA	44	NS	2348.0E	0000	600.0D	15	5		WL
	3100	CRIM	21	GRF	0638.0	0837.0	201.0	24	8		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
03	9500	POTS	20	GRF	0826.5	0836.2	19.0	16			
	3000	POTS	3	S	0831.0	0834.5	6.5	26			
	3100	CRIM	3	S	0831.0	0834.5	5.0	21	7		
	9100	GORK	22	GRF	0831.4	0834.5	15.7	14	7		
	1470	POTS	1	S	0831.5	0832.5	1.5	4.9			
	8400	BERN	20		0832.2	0836.1	17.0	15.0			
	10400	BERN	20		0832.2	0836.1	17.0	9.0			
	950	GORK	1	S	0837.6	0838.0	.6	1			
	650	GORK	1	S	0837.8	0837.8	.5	3	1.5		
	930	BORD	8	S	1108.2	1108.4	.3	16	2		
	1470	POTS	4	S/F	1153.0	1153.5	2.0	21			
	9400	HUAN		S	1249.6	1305.8	50.5	9.4	3.5		0
	7000	SAOP	20	GRF	1254.0	1309.4	21.4	12.0			0
	113	POTS	8	S	1419.1	1419.2	.1	400	150		
	7000	SAOP	3	S	1635.0	1636.0	6.2	10.0			7L
	7000	SAOP	20	GRF	1705.3	1710.9	9.6	10.0			0 2 COMPONENTS
	9400	HUAN		S	1752.1	1804.5	31.5	9.9	6.4		R
	7000	SAOP	45	C	1754.4	1755.2	1.4	28.0			11L
	9400	HUAN		S	1754.7	1755.1	1.1	13.1	7.9		L
	9400	HUAN		S	2040.5	2041.4	1.7	6.6	6.4		0
	2800	OTTA	3	S	2109.9	2110.7	5.0	36.6	9.2		
	2695	BOUL	3	S	2111.0E	2112	2.5D	21.0	7.0		
	2800	OTTA	3	S	2148.5	2150	9.0	28.6	7.2		
	9400	HUAN		S	2148.8	2149.9	2.8	27.9	15.9		0
	2695	BOUL	3	S	2149.0E	2151	4.0D	22.0	7.0		
04	127	TORN	44	NS	0620.0E		560.0D		1		V1 DISTURBED
	260	ONDR	44	NS	0805.0E		435.0D	27			
	930	BORD	41	F	0741.8	0742.3	.6	29	3		
	113	POTS	8	S	0807.6	0807.6	.1E	150	50		
	9100	GORK	1	S	0823.5	0824.0	1.0	12	6		
	6100	KISV	8	S	0826.0	0826.7	2.0	8			
	8400	BERN	1		0826.2	0826.7	1.5	19.0			
	10400	BERN	1		0826.2	0826.7	1.5	11.0			
	113	POTS	8	S	0909.2	0909.2	.1E	100	30		
	6100	KISV	3	S	1023.0	1023.7	2.0	3			
	10400	BERN	20		1044.5	1107.3	153.0	11.0			
	8400	BERN	20		1044.5	1107.3	253.0	17.0			
	6100	KISV	45	C	1045.0	1050.7		13			
	6100	KISV			1045.0	1050		12			
	9100	GORK	22	GRF	1046.5	1107.1	109.0	14			
	950	GORK	20	GRF	1048.5	1050.3	10.4	12	6		
	350	GORK	20	GRF	1049.0	1050.2	17.7	6.5	2		
	930	BORD	3	S	1049.0	1050.2	5.0	17	6		
	2650	DWIN	45	C	1049.0	1050	2.0	100	40		
	202	IZMI	4	S/F	1050.0	1050.2	2.0	360	150		
	228	HARS	45	C	1050.0	1050.3	2.8	210	30		
	127	TORN	4	S/F	1050.1	1050.7	2.7	282	176		
	33	UPIC	46	C	1050.2		2.2				
	234	POTS	4	S/F	1050.4	1050.4	1.0	100	20		
	113	POTS	4	S/F	1050.4	1050.4	1.4	400	35		
	29	UPIC	46	C	1050.5	1051.1	2.1				
	1470	POTS	4	S/F	1118.0	1119.1	2.0	9.1			
	2800	OTTA	20	GRF	1240.0	1250	35.0	4.0	2.0		
	9400	HUAN		S	1240.4	1245.6	26.6	8.1	4.2		0
	9500	POTS	20	GRF	1242.0	1251	43.0	5.3			
	9400	HUAN		S	1345.5	1400.6	49.2	11.3	6.8		R
	7000	SAOP	45	C	1359.0	1403.9	6.6	10.0			7R
	9400	HUAN		S	1401.8	1403.8	3.3	12.9	5.2		R
	4995	BOUL	4	SF	1420.0	1421	3.0	19.0	6.0		
	9400	HUAN		S	1420.8	1421.8	2.1	9.7	3.6		0
	2800	OTTA	41	SER	1421.0	1421.7	8.0	7.8			
	2800	OTTA	1	S	1421.0	1421.7	2.0	7.8	3.7		
	7000	SAOP	45	C	1421.0	1421.8	13.4	12.0			12R
	2800	OTTA	1	S	1424.4	1424.9	1.5	2.0	1.0		
	2800	OTTA	1	S	1427.8	1428	1.2	3.4	1.6		
	2800	OTTA	21	GRF	1500.0	1634	260.0	22.6	12.3		
	9400	HUAN		C	1540.6	1559.6	25.4	355.5	122.7		R
	10400	BERN	1		1544.9	1545.6	2.0	16.0			
	2800	OTTA	1	S	1545.0	1546	1.2	3.8	1.9		
	7000	SAOP	46	C	1545.0	1559.6	55.6	405.0			1L INVERTED POL
	930	BORD	41	F	1545.4	1545.6	.3	17	2		
	10400	BERN	45		1549.1	1559.6	34.0	223.0			
	1420	BOUL	45	C	1550.0E	1555	30.0D	43.0	14.0		
	2800	OTTA	4	S/F	1550.0	1556	27.0	148.0	44.9		
	10715	DWIN	4	S/F	1550.0	1600	30.0	190	100		SUNSET
	2650	DWIN	3	S/F	1550.0	1556	25.0	130	50		SUNSET
	4995	BOUL	45	C	1551.0	1556	16.0	350.0	117.0		
	2695	BOUL	45	C	1551.0E	1557	15.0D	107.0	36.0		
	930	BORD	40	F	1551.0	1555.3	12.0	19	6		
	9400	HUAN		PDI	1606.0	1606.0	174.4	98.6	31.7		0
	930	BORD	40	F	1612.0	1614.7	13.0	23	3		
	9400	HUAN		C	1635.4	1639.2	6.1	79.2	28.3		0
	2800	OTTA	4	S/F	1635.8	1639.5	7.0	43.0	13.4		
	2695	BOUL	3	S	1637.0E	1640	5.0D	16.0	5.0		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
04	2800	OTTA	45	C	1646.4	1651	13.0	45.0	22.0		
	2695	BOUL	4	SP	1647.0E	1652	5.0D	16.0	5.0		
	930	BORD	41	F	1648.5	1648.8	.5	17	3		
	9400	HUAN		S	2101.8	2104.3	3.4	45.2	18.6		R
	2800	OTTA	21	GRF	2103.0		140.0	8.8	4.4		
	2800	OTTA	3	S	2103.5	2104.5	6.5	34.4	9.8		
	2695	BOUL	3	S	2104.0E	2105	3.0D	25.0	8.0		
	9400	HUAN		S	2107.6	2108.3	1.5	11.3	7.1		0
	2800	OTTA	22	GRF	2116.0	2124	16.0	14.0	7.0		
05	127	TORN	43	NS	0731.0	1050.2	489.0	73	16		V1 DISTURBED
	260	ONDR	44	NS	0800.0E		418.0D	22			
	500	HIRA	6	S	0200.1	0200.3	.6	240	150		WL
	15000	KISV	21	GRF	0555.0	0602.7	30.0	24			
	1415	MANI	4	S/F	0600.0	0600.7	3.3	221.9	73.9		
	6100	KISV			0600.0	0602.7		16			
	5730	IRKU			0600.0	0608.6		11			L
	6100	KISV			0600.0	0608.5		8			
	6100	KISV	46	C	0600.0	0602.5	20.0	17			
	6100	KISV			0600.0	0608.7		9			
	3100	CRIM	3	S	0600.0	0603.0	4.0	32	11		
	5730	IRKU	21	GRF	0600.0	0602.8	12.0	21			R
	9100	GORK	23	GRF	0600.2	0603.9	16.8	12	6		
	4995	MANI	3	S	0601.8	0602.5	1.2	11.6	3.9		
	650	GORK	4	S/F	0601.8	0603.0	2.0	38			
	606	MANI	4	S/F	0602.0	0602.2	.8	29.1	9.7		
	950	GORK	4	S/F	0602.0	0603.2	2.0	63 D			
	9100	GORK	2	S/F	0602.5	0603.3	1.3	15	8		
	202	IZMI	41	F	0654.0	0655.0	1.2	625			
	3100	CRIM	26	FAL	0752.0	0844.0	52.0	8			
	9100	GORK	21	GRF	0821.2	0831.0	19.6	5	3		
	2650	DWIN	1	S	0822.0	0823	3.0	50	30		
	3000	POTS	4	S/F	0822.5	0823.5	2.0	44			
	1470	POTS	3	S	0822.7	0823.5	1.8	8.8			
	8400	BERN	1		0822.9	0823.1	2.0	21.0			
	10400	BERN	1		0822.9	0823.1	2.0	9.0			
	3100	CRIM	3	S	0823.0	0823.5	1.0	42	14		
	9100	GORK	1	S	0823.0	0823.2	.9	9	4.5		
	9500	POTS	1	S	0823.0	0823.3	1.0	7.0			
	536	ONDR	3	S	0826.0	0826	.3	25			
	536	ONDR	42	SER	0954.0	0954.2	61.0	27			
	9500	POTS	20	GRF	1025.0	1039	50.0	19			
	8400	BERN	46		1030.0	1149.9	240.0	539.0			
	10400	BERN	46		1030.0	1149.9	240.0	458.0			
	3000	POTS	25	R	1030.0	1032.5	45.0	24			
	9100	GORK	23	GRF	1030.9		105.0				
	3100	CRIM	3	S	1031.0	1033.0	3.0	21	7		
	1470	POTS	28	PRE	1032.0	1037.5	11.0	19			
	2650	DWIN	45	C	1032.0	1039	8.0	20	10		
	3100	CRIM	28	PRE	1036.0	1145.0	69.0	13			
	33	UPIC	45	C	1046.5	1047.1U	1.5				
	29	UPIC	45	C	1046.8	1047.1	1.5				
	15000	KISV			1137.0	1200.5		90			
	15000	KISV	46	C	1137.0	1150		420			
	6100	KISV	46	C	1137.0	1150		500			
	6100	KISV			1137.0	1159.5		300			
	6100	KISV			1137.0	1209.5		150			
	7000	SAOP	46	C	1139.0			620.0D			1L INVERTED POL
	9500	POTS	45	C	1140.0	1149.8	150.0	505			
	950	GORK	46	C	1141.2	1150.4	78.0	40			
	950	GORK			1141.2	1244.0		100			
	950	GORK			1141.2	1203.8		36			
	3000	POTS	46	C	1142.0	1200	147.0	320			
	1470	POTS	46	C	1143.0	1300.2	125.0	2100			
	9400	HUAN		C	1144.2	1149.8	21.2	757.7	270.2		L
	536	ONDR	49	GB	1144.5	1215.7	84.0	88	44		
	2800	OTTA			1145.0	1150	11.5	170.0			
	2800	OTTA	46F	C	1145.0	1200	31.0	254.0	115.0		
	930	BORD		PRE	1145.0	1244	65.0	257	20		
	9100	GORK			1145.0	1159.8		210			
	10715	DWIN	47	GB	1145.0	1150	120.0	230 D			
	808	ONDR	28	PRE	1145.0	1215.3	69.0	88	23		
	2650	DWIN	47	GB	1145.0	1200	60.0	250	100		
	9100	GORK	46	C	1145.0	1150.0	27.7	575			
	650	GORK			1145.8	1215.9		140			
	650	GORK	47	GB	1145.8	1154.1	75.0	49			
	3100	CRIM	47	GB	1146.0	1150.0	27.0	181	60		
	3100	CRIM			1146.0	1200.0		300	100		
	228	HARS	49	GB	1147.5	1149.0	150.0	500	70		
	260	ONDR	46	C	1147.6		3.0	212 D	119		
	202	IZMI	45	C	1147.8	1148.3	4.2	2000	900		
	113	POTS	48	C	1148.0	1149.0	167.0D	7000			
	234	POTS	48	C	1148.0	1148.5	167.0D	3900			
	33	UPIC	2	S/F	1148.5	1148.5	.4				
	29	UPIC	2	S/F	1148.5	1148.9	.8				

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
05	2800	OTTA			1156.5	1200	11.5	254.0			
	9400	HUAN		PBI	1205.4	1205.4	120.0	161.3	34.7		L
	2800	OTTA			1208.0	1209.5	6.0	111.0			
	3100	CRIM	29	PBI	1213.0	1213.0	47.0D	37			
	2800	OTTA	30	PBI	1214.0	1214	355.0	29.2	9.8		
	2800	OTTA	4	S/F	1224.3	1225.5	3.5	17.6	8.8		
	930	BORD	47	GB	1250.0	1300 U	16.0	3267 D			
	808	ONDR	48	C	1254.7		14.0	616 D	515		
	2800	OTTA	4	S/F	1255.0	1258.8	11.0	124.0	41.7		
	2650	DWIN	45	C	1255.0	1258	11.0	240	100		
	930	BORD		PBI	1306.0	1403	101.0	149	25		
	536	ONDR	29	PBI	1308.5	1406.5	110.0	19	8		
	2800	OTTA	1	S	1310.0	1311	2.0	5.0	2.5		
	808	ONDR	46	C	1343.6	1401.2	57.0	50	21		
	9400	HUAN		S	1421.2	1426.6	26.3	6.7	3.3		O
	9400	HUAN		S	1520.5	1621.5	86.2	15.1	5.1		R
	930	BORD	41	F	1604.0	1605.4	7.5	35	3		
	2800	OTTA	1	S	1614.0	1614.9	5.5	4.2	1.4		
	930	BORD	46	C	1623.0	1629.2	45.0D	99 D			
	7000	SAOP	40	F	1632.0		115.0				
	2900	OTTA	20	GRF	1840.0	1910	70.0	2.8	2.0		
	2800	OTTA	1	S	2020.0	2021.4	2.5	3.0	1.5		
	2695	PENT	20	GRF	2150.0	2213	90.0	3.2	1.8		
06	536	ONDR	44	NS	0750.0E		434.0D	15	3		
	260	ONDR	44	NS	0750.0E		434.0D	33	4		
	127	TORN	43	NS	0756.0	0818.7	466.0	416	11		V2
	200	HIRA	44	NS	2037.0E	0111	700.0D	20	5		WL
	7000	NOBE	1	S	0334.6	0334.9	7.0	24			O
	6100	KISV	45	C	0622.0	0623.7	9.0	15			
	6100	KISV			0622.0	0630		11			
	15000	KISV	45	C	0622.5	0623.7	8.0	14			
	15000	KISV			0622.5	0629.0		10			
	10400	BERN	1		0623.4	0623.6	8.0	17.0			
	8400	BERN	1		0623.4	0623.6	8.0	28.0			
	9100	GORK	21	GRF	0623.8	0748.0	200.0	18	9		
	15000	KISV	24	R	0630.0	0630	32.0	9			
	6100	KISV	24	R	0630.5	0633	10.0	9			
	3100	CRIM	3	S	0658.0	0704.0	7.0	34	8		
	6100	KISV	20	GRF	0700.0	0702.5	40.0	10			
	650	GORK	2	S/F	0701.8E	0703.2	2.5	5.5			
	950	GORK	20	GRF	0701.8	0703.0	8.6	5.5	1.8		
	15000	KISV	24	R	0702.0	0702	39.0	9			
	3100	CRIM	30	PBI	0705.0	0705.0	172.0	17			
	6100	KISV	4	S/F	0740.0	0744.3	8.0	20			
	8400	BERN	20		0740.9	0744.2	140.0	39.0			
	10400	BERN	20		0740.9	0744.2	140.0	27.0			
	9500	POTS	29	PBI	0741.0	0744.2	150.0	21			
	3000	POTS	4	S/F	0741.0	0744.1	6.5	22			
	15000	KISV	20	GRF	0741.0	0744.3	109.0	17			
	3100	CRIM	3	S	0741.0	0744.0	5.0	32	11		
	9100	GORK	1	S	0743.6	0744.5	2.6	19	9		
	6100	KISV	24	R	0748.0	0748	32.0	10			
	6100	KISV	26	FAL	0820.0	0820	140.0	40			
	29	UPIC	3	S	0900.5	0900.6	.4				
	33	UPIC	4	S/F	0900.5	0900.6	.5				
	15000	KISV	26	FAL	1030.0	1107	37.0	-20			
	9500	POTS	22	GRF	1107.0	1114	28.0	13			
	15000	KISV	21	GRF	1107.0	1114	33.0	26			
	8400	BERN	46		1113.4	1114.0	3.5	22.0			
	10400	BERN	46		1113.4	1114.0	3.5	12.0			
	930	BORD	41	F	1116.0	1116.1	.2	19	2		
	3100	CRIM	1	S	1121.5	1122.0	1.0	15	5		
	113	POTS	27	RF	1203.0	1325.5	147.0	56	15		
	2800	OTTA	20	GRF	1238.0	1312	70.0	5.2	2.6		
	7000	SAOP	40	F	1420.0		88.0				
	2800	OTTA	1	S	1437.0	1437.5	1.5	4.2	2.1		
	930	BORD	8	S	1437.3	1437.3	.1	22	2		
	2800	OTTA	20	GRF	1500.0	1525	50.0	3.2	1.6		
	2800	OTTA	1	S	1722.5	1724	3.0	2.0	1.0		
	2800	OTTA	20	GRF	1750.0	1830	85.0	2.8	1.6		
	9400	HUAN		S	1858.2	1914.8	32.5	5.0	4.0		R
	2800	OTTA	20	GRF	1930.0	2000	110.0	2.8	1.4		
	9400	HUAN		S	2026.1	2027.0	2.3	11.7	5.7		O
	2695	PENT	20	GRF	2125.0	2210	90.0	3.2	1.6		
07	536	ONDR	44	NS	0810.0E		130.0	14			
	260	ONDR	44	NS	0810.0E		410.0D	34	2		
	200	HIRA	44	NS	2038.0E	0340	540.0D	50	10		ML
	9100	GORK	22	GRF	0454.6	0502.0	23.0	14	7		
	650	GORK	23	GRF	0539.0		45.0	16	6		
	950	GORK	20	GRF	0539.0	0551.0	38.4	6			
	3100	CRIM	21	GRF	0714.0	0813.0	179.0	13	4		
	650	GORK	23	GRF	0757.5		121.0	8.5	4		
	6100	KISV	27	RF	0800.0	0830	60.0	12			

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
07	9500	POTS	20	GRF	0805.0	0812	40.0	10			
	3000	POTS	20	GRF	0805.0	0827	45.0	8.1			
	9100	GORK	20	GRF	0807.2	0812.0	130.0	8	4		
	1470	POTS	20	GRF	0810.0	0815	35.0	5.1			
	930	BORD	8	S	0854.1	0854.3	.3	18	2		
	930	BORD	8	S	0922.7	0922.8	.2	25	2		
	113	POTS	4	S/F	0951.0	0952.1	2.3	2100	85		
	234	POTS	4	S/F	0951.0	0952.1	2.4	560	12		
	228	HARS	45	C	0951.3	0951.4	1.3	260	45		
	260	ONDR	8	S	0951.8	0951.8	.3	209 D			
	127	TORN	47	GB	0952.0	0952.2	2.2	1070	193		
	3100	CRIM	1	S	0952.0	0953.0	2.0	11	4		
	202	IZMI	45	C	0952.0	0952.0	1.5	1000	450		
	3000	POTS	3	S	0952.5	0953.0	1.5	9.9			
	1470	POTS	1	S	0952.5	0953.2	1.5	2.9			
	930	BORD	8	S	1008.6	1008.7	.2	16	2		
	930	BORD	8	S	1028.3	1028.4	.2	20	2		
	930	BORD	8	S	1046.7	1046.8	.2	22	2		
	930	BORD	8	S	1100.0	1100.1	.2	22	2		
	930	BORD	8	S	1130.0	1130.2	.2	17	2		
	930	BORD	8	S	1140.8	1140.9	.2	17	2		
	930	BORD	8	S	1150.5	1150.6	.2	21	2		
	9400	HUAN		S	1204.8	1206.8	4.3	9.0	6.9		L
	8400	BERN	1		1206.3	1206.8	2.0	21.0			
	10400	BERN	1		1206.3	1206.8	2.0	8.0			
	9500	POTS	3	S	1206.5	1206.8	1.5	14			
	930	BORD	8	S	1212.3	1212.3	.3	20	2		
	7000	SAOP	3	S	1221.0	1221.8	2.0	14.0			10L
	930	BORD	8	S	1237.4	1237.5	.2	17	2		
	930	BORD	8	S	1258.9	1258.9	.1	26	1		
	930	BORD	8	S	1310.1	1310.1	.2	20	2		
	930	BORD	8	S	1320.0	1320.1	.1	17	2		
	113	POTS	8	S	1323.3	1323.3	.1E	100	40		
	930	BORD	8	S	1358.8	1358.9	.2	15	2		
	7000	SAOP	4	S/F	1404.0			630.0D			10L SATURATION
	9400	HUAN		C	1404.6	1412.2	10.4	563.8	195.7		L
	1470	POTS	29	PBI	1405.0	1413.2	80.0	162			
	9500	POTS	29	PBI	1405.0	1412.4	80.0	386			
	3000	POTS	29	PBI	1405.0	1412.5	80.0	610			
	4995	BOUL	47	GB	1408.0	1413	12.5	612.0	204.0		
	10400	BERN	46		1409.1	1412.3	80.0	369.0			
	8400	BERN	46		1409.1	1412.3	80.0	471.0			
	930	BORD	45	C	1410.0	1414.7	27.0	53	12		
	1420	BOUL	3	S	1410.0E	1413	13.0D	141.0	47.0		
	2650	DWIN	3	S	1410.0		13.0	470 D			
	10715	DWIN	3	S	1410.0		15.0	250 D			
	2695	BOUL	3	S	1411.0E	1413	10.0D	475.0	158.0		
	808	ONDR	45	C	1411.8	1413.5	8.5	40	29		
	536	ONDR	41	F	1412.0	1415.8	48.0	13	2		
	9400	HUAN		PBI	1415.0	1415.0	130.8	99.0	19.4		L
	2800	OTTA			1418.0E	1418	6.0D	44.0			
	2800	OTTA	30	PBI	1424.0	1424	160.0	20.6	10.3		
	930	BORD	8	S	1539.7	1539.7	.2	20	2		
	930	BORD	8	S	1552.5	1552.5	.2	17	2		
	930	BORD	41	F	1615.4	1615.5	.3	17	3		
	2800	OTTA	1	S	1656.0	1656.3	1.0	2.0	1.0		
	2800	OTTA	21	GRF	1835.0	1900	75.0	3.8	1.9		
	2800	OTTA	2	S/F	1843.2	1844.5	4.0	2.0	1.0		
	2800	OTTA	21	GRF	2117.0	2124	41.0	3.8	1.9		
	2800	OTTA	2	S/F	2123.3	2123.5	1.0	3.2			
	2695	PENT	40	F	2228.0	2232.7	8.0	4.6			
	2695	PENT	3	S	2250.8	2251.5	3.5	96.0	32.0		
	4995	BOUL	3	S	2251.0	2251.5	2.0	85.0	28.0		
	1420	BOUL	4	SF	2251.0E	2151.5	3.0D	37.0	12.0		
	1400	SYDN	4	S	2251.0	2251.6	4.8				
	17000	NOBE	4	S/F	2251.0	2251.4	2.0	158			0
	700	SYDN	4	S	2251.1	2251.6	4.6				
	2695	BOUL	3	S	2252.0E	2253	3.0D	73.0	24.0		
	2695	PENT	30	PBI	2254.3	2254.3	11.0	7.8	3.9		
	2695	PENT	1	S	2259.2	2259.8	2.8	9.8	4.6		
	2695	PENT	1	S	2302.2	2302.8	1.2	6.6	3.3		
	2695	PENT	8	S	2336.5	2336.9	.5	9.8			
	700	SYDN	8	S	2336.5	2336.6	.4				
08	200	HIRA	44	NS	0000.0E	0230	480.0D	70	30		ML
	127	TORN	44	NS	0600.0E	0914.2	580.0D	34	3.4		V1
	202	IZMI	44	NS	0600.0E		360.0D	70			
	260	ONDR	44	NS	0814.0E		404.0D	47	3		
	536	ONDR	44	NS	0814.0E		384.0D	24	2		
	200	HIRA	44	NS	2040.0E	2245	630.0D	110	25		ML
	200	HIRA	46	C	0127.0U	0128	3.0	500	35		MR
	100	HIRA	46	C	0127.0	0129	5.0	14000	300		
	500	HIRA	27	RF	0153.0	0227	90.0	30	10		SL
	1400	SYDN	41	F	0204.7	0207.2	9.3				
	650	GORK	22	GRF	0707.4	0715.4	28.1	16	4		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
08	29	UPIC	42 SER	0841.9	0942.6	155.3				
	33	UPIC	42 SER	0842.1	0902.9	154.4				
	650	GORK	22 GRF	0918.3	0923.8	35.8	11	4		
	9400	HUAN	S	1600.5	1611.2	56.8	7.4	3.2		R
	2800	OTTA	2 S/F	1631.9	1632	2.0	2.8	1.4		
	2800	OTTA	20 GRF	1700.0	1855	170.0	5.0	2.8		
	2800	OTTA	26O FAL	2135.0	2140	5.0	-3.2	-1.6		
	2695	PENT	21 GRF	2240.0	2322	70.0	6.2	3.1		
	2930	VORO	3 S	2250.0	2252	10.0	131			
	2695	PENT	8 S	2256.0	2256.3	.5	6.6	3.3		
09	200	HIRA	44 NS	0034.0E	0131	500.0D	15	5		WR
	127	TORN	44 NS	0600.0E	0735.3	580.0D	2600	14		V2 DISTURBED
	202	IZMI	44 NS	0600.0E		360.0D	35			
	260	ONDR	44 NS	0750.0E		422.0D	64	5		
	100	HIRA	44 NS	2037.0E	2103	110.0D	250	30		
	234	POTS	42 SER	0626.9	0627.0	2.3	450	3		
	6100	KISV	4 S/F	0654.0	0658.5	7.0	20			
	9100	GORK	20 GRF	0655.6	0656.4	46.4	9	4.5		
	6100	KISV	24 R	0702.0	0702		6			
	202	IZMI	41 F	0853.0	0854.2	.2	600			
	228	HARS	45 C	0854.4	0854.5	1.0	325	110		
	536	ONDR	42 SER	0903.0	0948.4	107.0	17			
	6100	KISV	26 FAL	0905.0	0913	28.0	6			
	6100	KISV	4 S/F	0933.0	0934.3	4.0	8			
	113	POTS	4 S/F	0958.6	0958.9	.3	280	45		
	930	BORD	8 S	1037.7	1037.7	.2	34	2		
	930	BORD	8 S	1117.8	1117.8	.2	32	2		
	9100	GORK	20 GRF	1127.0	1303.0	63.0	7			
	930	BORD	8 S	1157.3	1157.4	.2	57	2		
	930	BORD	8 S	1217.8	1217.8	.2	25	2		
	930	BORD	8 S	1236.0	1236.3	.3	35	2		
	930	BORD	8 S	1311.9	1311.9	.1	34	2		
	9400	HUAN	S	1313.7	1335.5	41.8	5.4	4.4		O
	2800	OTTA	24O R	1320.0	1350	30.0	5.0	2.5		
	930	BORD	8 S	1323.8	1323.8	.1	35	2		
	930	BORD	8 S	1338.8	1338.8	.2	47	2		
	930	BORD	8 S	1353.8	1353.8	.2	28	2		
	2800	OTTA	21 GRF	1405.0	1500	80.0	4.0	2.8		
	930	BORD	8 S	1407.2	1407.2	.2	56	2		
	234	POTS	8 S	1408.9	1409.0	.1	420	150		
	930	BORD	8 S	1420.5	1420.5	.2	24	2		
	930	BORD	8 S	1430.1	1430.3	.3	23	2		
	930	BORD	8 S	1434.2	1434.3	.2	45	2		
	930	BORD	41 F	1442.0	1442.8	1.0	34	3		
	930	BORD	8 S	1450.8	1450.9	.2	13	2		
	930	BORD	41 F	1458.7	1458.7	1.4	42	2		
	2800	OTTA	8 S	1459.9	1500	.5	2.0	1.0		
	930	BORD	8 S	1509.8	1509.8	.2	38	2		
	1420	BOUL	45 C	1524.5E	1526	4.0D	159.0	53.0		
	930	BORD	41 F	1525.0	1526	2.5	131	5		
	930	BORD	8 S	1543.4	1543.4	.2	32	2		
	930	BORD	8 S	1601.0	1601	.2	39	2		
	930	BORD	8 S	1617.0	1617	.2	32	2		
	930	BORD	8 S	1635.3	1635.4	.2	34	2		
	930	BORD	8 S	1655.0	1655	.2	37	2		
	2800	OTTA	8 S	1834.0	1834	.1	8.2			
	2800	OTTA	1A S	1959.0	2000	1.5	2.4	1.2		
	2800	OTTA	8 S	1959.4	1959.4	.1	7.8			
	2800	OTTA	24 R	2122.0	2123	1.0	4.0	3.0		
	2800	OTTA	27A RF	2122.0		143.0	4.0	3.8		
	9400	HUAN	S	2122.6	2126.1	16.7	16.3	7.2		R
	2800	OTTA	24P R	2123.0		132.0	4.0			
	2800	OTTA	1 S	2125.0	2126	3.0	6.6	3.3		
	2695	PENT	26 FAL	2335.0	2345	10.0	-4.0			
10	260	ONDR	44 NS	0800.0E		418.0D	91	3		
	127	TORN	43 NS	0900.0	1111.6	580.0D	238	12		V2
	113	POTS	43 NS	1121.0	1335	232.0D	75			
	100	HIRA	44 NS	2328.0E	2358	60.0D	100	30		SR
	200	HIRA	44 NS	2346.0E	0309	310.0D	10	5		WR
	1415	MANI	4 S/F	0053.4	0054.7	4.6	51.9	17.3		
	1400	SYDN	41 F	0053.8	0054.7	4.2				
	606	MANI	4 S/F	0053.9	0054.7	4.1	46.2	15.4		
	234	POTS	8 S	0626.9	0627.1	.7	1600	500		
	113	POTS	8 S	0643.3	0643.3	.1	200	70		
	113	POTS	4 S/F	0711.8	0711.8	.2	200	20		
	113	POTS	8 S	0740.0	0740.1	.1E	200	70		
	202	IZMI	8 S	0907.0	0907.1	.3	380	100		
	113	POTS	42 SER	0919.5	0919.6	3.9	1400	20		
	29	UPIC	45 C	1105.5	1106.2	1.3				
	33	UPIC	45 C	1105.5	1106.1	1.1				
	228	HARS	45 C	1111.4	1111.6	.6	200	60		
	113	POTS	4 S/F	1111.5	1111.6	.6	300	30		
	33	UPIC	45 C	1111.6	1111.7	.8				

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
10	29	UPIC	4 S/F	1112.0	1112.1	.6				
	930	BORD	46 C	1245.4	1245.9	.8	27	3		
	1470	POTS	8 S	1245.5	1245.7	1.0	12			
	2800	OTTA	20 GRF	1300.0	1320	55.0	2.8	2.0		
	536	ONDR	3 S	1340.9	1340.9	.2	25			
	930	BORD	8 S	1419.4	1419.6	.3	42	2		
	930	BORD	8 S	1440.1	1440.3	.3	38	2		
	2800	OTTA	21 GRF	1445.0	1545	105.0	6.6	3.3		
	930	BORD	8 S	1457.2	1457.3	.2	32	2		
	9400	HUAN	S	1459.0	1539.6	78.6	6.5	3.1		R
	930	BORD	8 S	1515.3	1515.4	.2	37	2		
	930	BORD	8 S	1533.0	1533.1	.2	32	2		
	2800	OTTA	1 S	1540.0	1540.2	1.0	2.4	1.2		
	930	BORD	8 S	1551.9	1551.9	.2	39	2		
	930	BORD	8 S	1611.7	1611.8	.2	34	2		
	930	BORD	8 S	1631.7	1631.8	.2	39	2		
	2695	PENT	1 S	2249.0	2249.7	2.0	5.8	2.6		
11	100	HIRA	43 NS	0223.0	0251	70.0	60	20		ML
	127	TORN	43 NS	0736.0	1051.6	544.0	63	5.4		V1
	260	ONDR	44 NS	0810.0E		402.0D	78	2		
	100	HIRA	44 NS	2040.0E	0534	630.0D	200	15		MR
	200	HIRA	44 NS	2040.0E	0007	630.0D	220	45		MR
	1400	SYDN	45 C	0355.3	0357.3	3.2				
	6100	KISV	1 S	0637.5	0638	2.0	2			
	3100	CRIM	20 GRF	0641.0	0650.0	40.0	10	3		
	6100	KISV	8 S	0645.5	0646	2.0	9			
	9100	GORK	20 GRF	0645.5	0701.4	45.5	12	6		
	500	HIRA	6 S	0646.0	0646.3	.6	210	100		MR
	113	POTS	41 F	0646.3	0646.3	.2	190	9		
	6100	KISV	24 R	0647.0	0647	4.0	3			
	6100	KISV	8 S	0700.5	0701.2	3.0	10			
	6100	KISV	45 C	0902.0	0913	33.0	6			
	6100	KISV		0902.0	0926		3			
	2650	DWIN	45 C	0943.0	0945	7.0	165	50		
	234	POTS	4 S/F	1010.5	1010.5	.2	200	40		
	2650	DWIN	1 S	1035.0	1036	5.0	30	20		
	930	BORD	46 C	1053.0	1053.2	.3	25	3		
	9100	GORK	20 GRF	1114.5	1116.2	20.6	15	7		
	9400	BERN	1	1144.5	1145.9	13.0	14.0			OPR
	10400	BERN	1	1144.5	1145.9	13.0	12.0			OPR
	7000	SAOP	3 S	1144.7	1146.1	3.8	17.0			BR
	9400	HUAN	S	1144.9	1145.9	4.7	12.6	7.2		R
	15000	KISV	29 PRE	1144.9	1144.9	1.0	3			
	3100	CRIM	1 S	1145.0	1145.5	1.0	32	11		
	1470	POTS	9 S	1145.5	1146.0	1.0	16			
	15000	KISV	8 S	1145.5	1146	2.0	18			
	3000	POTS	8 S	1145.5	1146.0	.9	75			
	2950	GORK	3 S	1145.7	1146.1	1.1	72	36		
	2650	DWIN	8 S	1146.0		75.0				
	9500	POTS	8 S	1146.0	1146.0	.5	8.6			
	2650	DWIN	45 C	1218.0	1219	150.0	100			
	2650	DWIN	45 C	1255.0	1258	8.0	65	30		
	2800	OTTA	27A RF	1300.0		270.0	4.0	3.6		
	2800	OTTA	24 R	1300.0	1305	5.0	4.0	2.0		
	1470	POTS	40 F	1303.0	1304.0	10.0	44			
	2800	OTTA	24P R	1305.0		220.0	4.0			
	7000	SAOP	3 S	1307.6	1309.3	10.8	17.0			0
	2800	OTTA	20 GRF	1308.0	1325	90.0	4.0			
	536	ONDR	8 S	1440.0	1440	.2	34			
	113	POTS	8 S	1444.1	1444.2	.1	175	60		
	234	POTS	9 S	1444.1	1444.1	.1	175	60		
	930	BORD	41 F	1511.7	1512.2	.6	66	3		
	930	BORD	41 F	1529.2	1529.3	.3	94	2		
	2800	OTTA	21 GRF	1546.0	1555	40.0	4.0	2.0		
	2800	OTTA	9 S	1552.5	1552.7	.8	4.8	2.2		
	930	BORD	8 S	1552.6	1552.9	.3	29	2		
	930	BORD	41 F	1629.0	1629.3	.3	17	2		
	2800	OTTA	26 FAL	1645.0	1730	45.0	-4.0	-2.0		
	2800	OTTA	1 S	1735.0	1735.5	1.0	9.0	2.3		
	4995	BOUL	4 SF	1836.0	1839	5.0	22.0	7.0		
	2800	OTTA	3 S	1836.0	1839.7	6.0	22.8	7.6		
	9400	HUAN	S	1837.2	1838.6	2.4	14.1	9.1		R
	2800	OTTA	29 PBI	1842.0	1842	45.0	4.0	2.0		
	2695	PENT	21 GRF	1955.0	2006	11.0	4.0			
	2800	OTTA	1 S	2000.0	2000.5	1.5	4.0	2.0		
	2800	OTTA	8 S	2045.0	2045.3	.5	5.0	2.5		
	2800	OTTA	20 GRF	2050.0	2145	120.0	10.0	5.0		
	500	HIRA	27 RF	2200.0	2231	50.0	20	10		
	2695	PENT	23 GRF	2256.0	2330	75.0	10.8			
	2695	PENT	4 S/F	2314.2	2314.5	1.0	15.6	7.8		
12	127	TORN	44 NS	0600.0E	0803.0	226.0	4300	13.5		V3 DISTURBED
	202	IZMI	44 NS	0600.0E		360.0D	100			
	113	POTS	44 NS	0622.0E	0715	118.0D	70			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
12	260	ONDR	44 NS	0300.0E		410.0D	168	6		
	200	HIRA	44 NS	2043.0E	0152	690.0D	140	15		MR
	100	HIRA	27 RF	0148.0	0208	60.0	900	200		SR
	500	HIRA	27 RF	0159.0	0207	18.0	20	10		SR
	202	IZMI	4 S/F	0722.5	0723.0	1.0	370	120		
	234	POTS	42 SER	0722.8	0729.4	6.8	420	5		
	113	POTS	42 SER	0722.9	0729.4	6.8	3200	16		
	202	IZMI	5 S	0729.0	0729.1	.6	970	450		
	113	POTS	42 SER	0741.9	0748.4	7.3	4500	30		
	228	HARS	45 C	0810.4	0810.5	1.2	500	170		
	202	IZMI	4 S/F	0811.3	0811.5	.8	500	200		
	234	POTS	42 SER	0811.3	0811.6	11.0	560	1		
	113	POTS	42 SER	0811.4	0821.0	11.0	1400	7		
	29	UPIC	42 SER	0905.3	1035	210.6				
	33	UPIC	42 SER	0905.3	1034.9	210.4				
	127	TORN	42 SER	1029.2	1042.0	18.0	348			
	113	POTS	42 SER	1029.5	1041.9	13.0	1000	4		
	234	POTS	42 SER	1029.5	1041.5	13.0	200	1		
	536	ONDR	46 C	1033.6	1035.6	16.0	169	10		
	8400	BERN	1	1034.0	1035.6	90.0	24.0			
	930	BORD	45 C	1034.0	1041.9	9.0	73	15		
	10400	BERN	1	1034.0	1035.6	90.0	14.0			
	808	ONDR	46 C	1034.0	1035.9	13.5	55	15		
	6100	KISV		1034.0	1043		14			
	6100	KISV	46 C	1034.0	1038	26.0	18			
	6100	KISV		1034.0	1038.5		14			
	3100	CRIM	1 S	1034.0	1036.0	7.0	17	6		
	6100	KISV		1034.0	1039.3		13			
	7000	SAOP	3 S	1034.1	1035.9	74.0	23.0			3R
	950	GORK	46 C	1034.4	1035.6	13.6	54			
	950	GORK		1034.4	1042.0		30			
	950	GORK		1034.4	1038.5		40			
	650	GORK	46 C	1034.5	1035.4	7.9	31			
	650	GORK		1034.5	1042.0		24			
	9100	GORK	22 GRF	1034.6	1035.7	49.0	17	9		
	15000	KISV	45 C	1035.0	1035.5	5.0	10			
	15000	KISV		1035.0	1039		3			
	650	GORK	29 PBI	1042.4	1042.4	12.8	2			
	6100	KISV	21 GRF	1105.0	1120.5	40.0	11			
	202	IZMI	41 F	1118.7	1119.0	2.1	350			
	234	POTS	4 S/F	1120.4	1120.7	.5	560	20		
	260	ONDR	8 S	1120.6	1120.8	.5	216 D			
	536	ONDR	3 S	1131.5	1131.5	.2	15			
	536	ONDR	46 C	1206.0	1210.7	8.5	55	5.3		
	3100	CRIM	1 S	1206.0	1206.5	1.5	5	2		
	6100	KISV	8 S	1206.3	1206.7	2.0	7			
	7000	SAOP	45 C	1206.4	1210.8	6.0	19.0			20L
	1470	POTS	3 S	1206.5	1207.0	1.0	8.2			
	650	GORK	41 F	1206.6	1207.1	4.9	6			
	650	GORK		1206.6	1210.6	35.0				
	113	POTS	8 S	1207.8	1207.8	.1E	200	70		
	930	BORD	45 C	1210.0	1210.6	1.4	52	10		
	950	GORK	4 S/F	1210.0	1210.8	1.8	39			
	808	ONDR	4 S/F	1210.0	1210.8	2.0	38	9		
	3000	POTS	3 S	1210.0	1210.5	1.5	9.6			
	3100	CRIM	1 S	1210.0	1210.5	2.0	6	2		
	1470	POTS	3 S	1210.0	1210.5	1.5	11			
	9100	GORK	1 S	1210.0	1211.0	3.0	11	5		
	8400	BERN	1	1210.2	1210.8	4.0	15.0			
	10400	BERN	1	1210.2	1210.8	4.0	9.0			
	6100	KISV	8 S	1210.3	1210.5	2.0	16			
	9500	POTS	1 S	1210.5	1211.0	2.0	6.9			
	930	BORD	8 S	1218.8	1218.9	.1	16	2		
	930	BORD	8 S	1227.8	1227.9	.2	25	2		
	113	POTS	42 SER	1232.4	1232.6	2.8	1000	60		
	234	POTS	42 SER	1232.5	1232.7	2.7	1200	7		
	536	ONDR	3 S	1239.2	1239.2	.2	17			
	930	BORD	8 S	1334.4	1334.5	.3	36	2		
	930	BORD	8 S	1352.4	1352.6	.3	31	2		
	113	POTS	8 S	1410.6	1410.6	.1E	300	100		
	930	BORD	8 S	1412.3	1412.4	.2	28	2		
	930	BORD	8 S	1429.3	1429.4	.2	28	2		
	930	BORD	8 S	1446.4	1446.4	.2	25	2		
	536	ONDR	3 S	1447.3	1447.3	.3	35			
	930	BORD	8 S	1507.1	1507.2	.2	34	2		
	2800	OTTA	20 GRF	1525.0	1550	55.0	3.2	1.6		
	930	BORD	8 S	1526.8	1526.9	.2	28	2		
	930	BORD	8 S	1542.6	1542.7	.2	24	2		
	930	BORD	8 S	1618.7	1618.8	.2	24	2		
	7000	SAOP	1 S	1622.4	1626.9		10.0			15R
	2800	OTTA	20 GRF	1755.0	1830	70.0	4.4	2.2		
	9400	HUAN	S	1800.9	1838.7	65.8	8.4	5.0		0
	2800	OTTA	21 GRF	2030.0	2105	200.0D	17.8			
	2800	OTTA	1 S	2035.0	2036	2.0	3.6	1.8		
	2800	OTTA	3 S	2044.0	2047	7.0	11.8	5.8		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
13	100	HIRA	43	NS	0100.0	0233	170.0	27	9		MR
	127	TORN	44	NS	0730.0E	0926.7	490.0D	564	68		V2
	260	ONDR	44	NS	0754.0E		426.0D	91	9		
	202	IZMI	43	NS	0800.0		240.0	80			
	113	POTS	43	NS	0808.0	1423	382.0D	200			
	200	HIRA	44	NS	2040.0E	2320	630.0D	240	50		MR
	100	HIRA	44	NS	2040.0E	0123	490.0D	250	50		SR
	17000	NOBE	1	S	0416.1	0416.5	.8	13			R
	6100	KISV	46	C	0635.0	0643	18.0	5			
	6100	KISV	27	RF	0653.0	0715	42.0	9			
	29	UPIC	4	S/F	0848.6	0848.7	.6				
	33	UPIC	4	S/F	0848.6	0848.6	.6				
	536	ONDR	2	S/F	0856.3	0856.3	1.0	29			
	202	IZMI	5	S	1052.0	1052.3	.8	750	350		
	202	IZMI	5	S	1140.3	1141.0	.5	550	300		
	2800	OTTA	240	R	1220.0	1300	40.0	8.0	4.0		
	2800	OTTA	240	R	1305.0	1317	12.0	7.2	3.6		
	9500	POTS	20	GRF	1310.0	1345	60.0	10			
	9400	HUAN		S	1312.3	1330.0	56.2	13.5	6.3		O
	3000	POTS	20	GRF	1314.0	1335	65.0	12			
	2800	OTTA	20	GRF	1325.0	1335	65.0	5.6	2.8		
	1470	POTS	20	GRF	1325.0	1346.5	48.0	3.3			
	2800	OTTA	40	F	1438.0	1450	14.0	30.0			
	10400	BERN	20		1438.8	1456.6	68.0	10.0			OPR
	2650	DWIN	45	C	1442.0	1450	10.0	60	10		
	9400	HUAN		S	1442.2	1500.0	65.6	11.8	9.4		R
	2800	OTTA	29	PBI	1452.0	1452	55.0	8.0	4.2		
	2800	OTTA	40	F	1634.0	1636.8	6.0	4.6			
	2800	OTTA	21	GRF	1700.0	1740	160.0	6.0	3.2		
	2800	OTTA	40	F	1729.0	1733.5	5.5	8.0			
	2800	OTTA	45	C	1959.0	1959.5	9.0	22.6	9.9		
	2800	OTTA	1	S	2039.0	2039.4	1.0	3.6	1.7		
	2800	OTTA	3	S	2128.2	2128.8	1.5	11.0	4.0		
14	260	ONDR	44	NS	0755.0E		425.0D	30	2		
	536	ONDR	43	NS	1032.0		224.0	14			
	2930	VORO	42	SER	0110.0	0146	47.0	119			
	17000	NOBE	20	GRF	0123.2	0142.6	100.0	63			R
	500	HIRA	40	F	0130.0	0147	21.0	50			MR
	1415	MANI	4	S/F	0134.5	0142.7	11.5	245.5	81.8		
	113	POTS	27	RF	0630.0E	0740	111.0D	56			
	9100	GORK	20	GRF	0649.5	0655.4	55.5	12	6		
	3100	CRIM	1	S	0650.0	0652.0	7.0	13	4		
	2950	GORK	1	S	0651.2	0651.4	1.3	4.5	2.2		
	3100	CRIM	20	GRF	0800.0	0821.0	72.0	5	2		
	33	UPIC	2	S/F	0818.0	0818.4	.5				
	29	UPIC	2	S/F	0818.0	0818.5	.6				
	536	ONDR	2	S/F	0820.0	0821.3	2.5	29	2.8		
	3100	CRIM	26	FAL	0912.0	1012.0	77.0	8	3		
	3100	CRIM	25	R	1029.0	1048.0	61.0D	5			
	3100	CRIM	1	S	1041.0	1043.0	6.0	7	2		
	2800	OTTA	23	GRF	1200.0	1320	280.0	16.2	8.1		
	9400	HUAN		S	1208.0	1242.0	104.0	10.4	5.9		O
	536	ONDR	8	S	1445.3	1445.3	.3	45			
	228	HARS	45	C	1452.2	1453.4	2.0	155	40		
	2800	OTTA	2	S/F	1613.7	1613.9	3.0	1.8			
	7000	SAOP	3	S	1720.2	1721.1	12.4	20.0			O
	9400	HUAN		S	1720.2	1721.3	2.1	19.1	9.2		O
	2800	OTTA	8	S	1720.9	1721	.2	4.8	2.4		
	2800	OTTA	20	GRF	1755.0	1900	85.0	4.8	2.8		
	2800	OTTA	20	GRF	1930.0	1945	40.0	3.4	1.7		
	2800	OTTA	260	FAL	2020.0	2045	25.0	-4.8	-2.6		
	2695	PENT	3	S	2322.7	2323.1	1.0	15.6	7.8		
	500	HIRA	6	S	2322.7	2323.0	1.0	42	20		ML
	200	HIRA	45	C	2323.0	2323	2.0	1600	500		WR
	100	HIRA	45	C	2323.0	2323	1.0	15000	5000		SL
15	260	ONDR	44	NS	0740.0E		436.0D	15			
	9100	GORK	1	S	0543.3	0543.8	4.6	5	2.5		
	3100	CRIM	20	GRF	0720.0	0747.0	68.0	8	3		
	950	GORK	4	S/F	0832.2	0832.4	.7	43			
	650	GORK	4	S/F	0832.3	0832.5	.7	98	49		
	3100	CRIM	1	S	0846.0	0846.5	1.0	8	3		
	202	IZMI	41	F	0929.0	0941.0	13.0	120			
	2650	DWIN	45	C	1052.0	1054	2.0	125	30		
	536	ONDR	42	SER	1251.5	1327.8	134.0	52			
	7000	SAOP	4	S/F	1447.5	1453.2	1.8	125.0			13L
	228	HARS	45	C	1450.3	1451.5	3.0	275	60		
	260	ONDR	45	C	1450.5	1451.7	2.0	202	32		
	10715	DWIN	1	S	1451.0	1452	2.0	40	20		
	2650	DWIN	1	S	1451.0	1452	2.0	30	15		
	2800	OTTA	4	S/F	1451.2	1452.1	2.7	28.2	9.4		
	10400	BERN	3		1451.4	1452.2	4.0	66.0			
	8400	BERN	3		1451.4	1452.2	4.0	96.0			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
15	9400	HUAN	S	1451.5	1452.1	3.4	94.8	24.0		L
	2800	OTTA 22	GRF	1530.0	1603	105.0	3.8	2.0		
	4995	BOUL 3	S	1900.0E	1901	2.0D	54.0	18.0		
16	260	ONDR 44	NS	0750.0E		418.0D	34			
	9100	GORK 22	GRF	0448.4	0457.8	25.0	6	3		
	234	POTS 8	S	0745.0	0745.0	.1E	230	80		
	536	ONDR 42	SER	0820.0	0850.8	51.0	84			
	234	POTS 41	F	0850.8	0850.8	.5	350	10		
	260	ONDR 4	S/F	0851.0	0851	.6	222 D			
	9100	GORK 22	GRF	1130.5	1207.5	60.0	26			
	3000	POTS 29	PBI	1202.5	1205.4	115.0	32			
	9500	POTS 29	PBI	1203.0	1206.0	120.0	19			
	3100	CRIM 3	S	1203.0	1205.5	4.0	34	11		
	10400	BERN 20		1203.3	1206.0	137.0	14.0			
	8400	BERN 20		1203.3	1206.0	137.0	22.0			
	1470	POTS 29	PBI	1203.5	1205.4	105.0	19			
	9400	HUAN	S	1204.0	1206.0	3.1	16.4	10.9		L
	2650	DWIN 1	S	1204.0	1205	3.0	30	20		
	7000	SAOP 45	C	1204.0	1207.0	22.0	35.0			18L
	3100	CRIM 29	PBI	1207.0	1207.0	29.0	13			
	9400	HUAN	PBI	1207.1	1207.1	88.7	9.8	6.8		L
	2800	OTTA 20	GRF	1225.0	1245	75.0	8.0	4.1		
	536	ONDR 42	SER	1334.0	1423.2	68.0	162			
	9400	HUAN	S	1350.4	1359.8	14.5	8.2	2.8		0
	2800	OTTA 27A	RF	1447.0		268.0	4.8	4.6		
	2800	OTTA 24	R	1447.0	1454	7.0	4.8	2.6		
	9400	HUAN	S	1453.4	1525.0	54.4	9.8	4.5		0
	2800	OTTA 24P	R	1454.0		246.0	4.8			
	4995	BOUL 4	SF	1637.0	1637.5	2.5	16.0	5.0		
	2800	OTTA 1	S	1637.8	1638	1.0	2.4	1.2		
	7000	SAOP 45	C	1638.0	1639.2	7.6	20.0			15L
	9400	HUAN	S	1736.2	1803.0	60.2	11.5	5.7		R
	2800	OTTA 26	FAL	1900.0	1915	15.0	-4.8	-2.4		
	2695	PENT 20	GRF	2010.0	2110	135.0	7.0	3.5		
	2695	PENT 3	S	2304.5	2305.5	2.5	12.6	6.3		
17	260	ONDR 44	NS	0755.0E		409.0D	27			
	100	HIRA 45	C	0319.0	0320	3.0	10	6		WL
	100	HIRA 46	C	0328.0	0330	2.0	41	13		WR
	200	HIRA 45	C	0354.0	0354	1.0	49	11		WR
	9100	GORK 20	GRF	0525.7	0607.0	70.3	10	5		
	100	HIRA 45	C	0642.0	0643	1.0	500	300		WR
	6100	KISV		0649.0	0704		77			
	6100	KISV 45	C	0649.0	0658.5	31.0	97			
	9100	GORK 1	S	0649.5	0650.6	2.7	13	6		
	9100	GORK 21	GRF	0649.5	0709.0	195.0	54			
	3100	CRIM 3	S	0650.0	0702.0	15.0	60	20		
	5730	IRKU 45	C	0655.0	0659.1	17.0	48			L
	5730	IRKU		0655.0	0704.2		68			L
	500	HIRA 7	C	0655.7	0655.9	.8	60	35		SR
	100	HIRA 46	C	0656.0	0657	1.0	700	200		WL
	8400	BERN 45		0657.0	0658.5	36.0	94.0			
	10400	BERN 45		0657.0	0658.5	36.0	108.0			
	9100	GORK 46	C	0658.0	0658.6	10.0	114			
	9100	GORK		0658.0	0707.2		65			
	17000	NOBE 8	S	0658.1	0658.5	.6	89			R
	500	HIRA 41	F	0700.0	0701.6	4.0	40			SR
	9500	POTS 3	S	0702.0	0704.2	5.0	40			
	3000	POTS 3	S	0703.0	0704.4	4.0	21			
	3100	CRIM 30	PBI	0705.0	0705.0	145.0	37			
	5730	IRKU 29	PBI	0712.0		30.0	22			L
	3100	CRIM 1	S	0804.0	0804.5	1.0	9	3		
	6100	KISV 4	S/F	1036.0	1038	8.0	6			
	9100	GORK 20	GRF	1037.9	1039.3	10.0	7	3.5		
	7000	SAOP 20	GRF	1038.0	1040.0	12.4	12.0			0 2 COMPONENTS
	7000	SAOP 20	GRF	1112.3	1113.2	18.8	12.0			0
	9400	HUAN	S	1222.0	1330.5	102.0	19.8	11.2		L
	8400	BERN 20		1230.0	1319.0	180.0	46.0			
	10400	BERN 20		1230.0	1319.0	180.0	36.0			
	2800	OTTA 23	GRF	1240.0	1345	105.0	7.6			
	10715	DWIN 1	S	1313.0	1314	2.0	30	15		
	2650	DWIN 1	S	1314.0	1314	2.0	25	10		
	7000	SAOP 4	S/F	1318.0	1320.1	2.0	57.0			0
	2800	OTTA 3	S	1318.0	1319	3.0	25.4	8.4		
	1470	POTS 2	S/F	1318.0	1318.0	2.0	2.7			
	3000	POTS 3	S	1318.0	1319.1	3.0	32			
	9400	HUAN	S	1318.3	1319.0	2.5	44.6	20.7		L
	9500	POTS 3	S	1318.4	1319.0	2.6	34			
	2800	OTTA 20	GRF	1430.0	1440	30.0	4.8	2.4		
	2800	OTTA 23	GRF	1535.0	1605	145.0	11.8	5.4		
	2800	OTTA 40	F	1639.2	1639.2	1.1	3.8			
	2800	OTTA 2	S/F	1741.5	1743.2	3.0	8.6	4.0		
	7000	SAOP 45	C	1742.4	1743.1	2.0	18.0			20L
	2800	OTTA 24O	R	1805.0	1835	30.0	3.4	1.9		

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
17	2800	OTTA	24	OAR	1850.0	2010	80.0	4.0	3.0		
	2800	OTTA	1	S	1900.0	1901	3.0	3.4	1.7		
	2695	PENT	20	GRF	2120.0	2200	90.0	5.4	2.7		
18	260	ONDR	44	NS	0742.0E		391.0D	91			
	2930	VORO	3	S	0015.0	0023	13.0	38			
	606	MANI	4	S/F	0020.2	0024.4	5.8	167.0	55.7		
	700	SYDN	41	F	0020.4	0024.6	5.6				
	1415	MANI	4	S/F	0020.5	0024.3	5.5	24.7	8.2		
	100	HIRA	42	SER	0022.0	0023	3.0	75			WL
	2695	MANI	4	S/F	0022.0	0024.1	4.0	23.8	9.4		
	500	HIRA	46	C	0022.3	0024.2	4.0	300	50		ML
	1400	SYDN	45	C	0023.1	0024.4	4.1				
	200	HIRA	45	C	0024.0	0024	1.0	1300	400		O
	5730	IRKU	20	GRF	0236.3	0236.9	4.0	15			L
	606	MANI	4	S/F	0350.0	0351.2	3.6	56.9	18.9		
	500	HIRA	46	C	0350.0	0352.0	5.0	250	100		MR
	700	SYDN	2	S	0350.5	0352.0	3.5				
	5730	IRKU	20	GRF	0350.9	0351.7	12.0	26			L
	200	HIRA	46	C	0351.0	0352	2.0	160	24		O
	100	HIRA	46	C	0351.0	0352	2.0	120	25		O
	100	HIRA	46	C	0402.0	0404	8.0	220	40		WR
	9100	GORK	22	GRF	0531.0	0536.1	18.0	20	10		
	9100	GORK	21	GRF	0556.1	0637.0	89.0	14	7		
	3100	CRIM	1	S	0635.0	0637.0	3.0	11	4		
	6100	KISV	9	S	0636.0	0636.5	3.0	7			
	6100	KISV	31	ABS	0639.0	0648	26.0	-5			
	6100	KISV	9	S	0705.0	0706.5	5.0	17			
	5730	IRKU	1	S	0705.3	0706.5	5.0	14			R
	9100	GORK	1	S	0706.0	0706.5	1.0	10	5		
	6100	KISV	24	R	0713.0	0713	17.0	6			
	9400	BERN	1		0731.6	0734.5	6.0	32.0			
	10400	BERN	1		0731.6	0734.5	6.0	32.0			
	9100	GORK	21	GRF	0732.3	0735.7	9.4	11	5		
	6100	KISV	8	S	0734.0	0734.5	3.0	10			
	9100	GORK	1	S	0734.2	0734.6	.9	26	13		
	536	ONDR	42	SER	0745.0	0938	190.0	65			
	9100	GORK	21	GRF	0759.0	1005.5	267.0	46	19		
	10400	BERN	46		0859.6	0915.6	42.0	77.0			
	9400	BERN	46		0859.6	0915.6	42.0	107.0			
	6100	KISV			0900.0	0922		69			
	6100	KISV			0900.0	0902.5		15			
	6100	KISV	45	C	0900.0	0920.3	22.0	92			
	1470	POTS	1	S	0901.0	0902.5	2.5	2.8			
	9500	POTS	3	S	0901.0	0902.5	3.0	21			
	5730	IRKU	1	S	0901.0	0902.6	4.0	18			R
	9100	GORK	1	S	0901.5	0902.6	2.9	15	7		
	2950	GORK	21	GRF	0901.7	0913.9	121.0	20			
	9100	GORK	46	C	0902.0	0903.7	12.7	106			
	9100	GORK			0902.0	0909.4		40			
	3000	POTS	3	S	0902.0	0902.5	2.0	20			
	3100	CRIM	1	S	0902.0	0902.5	2.0	21	7		
	2950	GORK	1	S	0902.3	0902.5	.8	15	7		
	5730	IRKU			0910.0	0914.9		52			R
	5730	IRKU	45	C	0910.0	0912.5	13.0	18			R
	5730	IRKU			0910.0	0918.4		34			R
	5730	IRKU			0910.0	0920.6		36			R
	5730	IRKU			0910.0	0914.5		32			R
	5730	IRKU			0910.0	0915.5		91			R
	950	GORK	22	GRF	0910.4	0924.4	17.1	4.7			
	2650	DWIN	45	C	0911.0	0916	16.0	70	40		
	9500	POTS	29	PBI	0911.0	0915.5	259.0	100			
	1470	POTS	29	PBI	0911.0	0914.1	229.0	19			
	3000	POTS	29	PBI	0911.5	0916.1	219.0	65			
	10715	DWIN	45	C	0912.0	0916	18.0	80	40		
	3100	CRIM	3	S	0912.0		13.0	41	D		
	2950	GORK	46	C	0914.1	0916.3	10.3	47			
	2950	GORK			0914.1	0920.4		31			
	6100	KISV	29	PBI	0922.0	0922	198.0	37			
	3100	CRIM	29	PBI	0925.0	0925.0	180.0D	19			
	10400	BERN	1		0948.9	0949.9	4.0	11.0			
	9400	BERN	1		0948.9	0949.9	4.0	17.0			
	6100	KISV	4	S/F	0949.0	0950	2.0	9			
	9100	GORK	1	S	0949.4	0950.0	1.5	15	7		
	9400	BERN	20		1000.9	1005.6	35.0	23.0			
	10400	BERN	20		1000.9	1005.6	35.0	13.0			
	6100	KISV	27	RF	1001.0	1007	16.0	17			
	930	BORD	46	C	1039.2	1039.3	.6	24	3		
	536	ONDR	42	SER	1254.0	1348.3	56.0	32			
	127	TORI	41	F	1344.6	1347.9	6.0	25			
	2800	OTTA	1	S	1347.5	1348	2.0	8.2	4.0		
	7900	SAOP	40	F	1439.0		168.0				
	2800	OTTA	20	GRF	1518.0	1527	50.0	5.2	4.0		
	9400	HUAY		S	1520.1	1548.0	70.1	4.9	1.7		O
	2800	OTTA	20	GRF	1955.0	2040	70.0	3.2	1.6		

SOLAR RADIO EMISSION
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OCTOBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
18	2695	PENT	2	S/F	2114.5	2115	1.5	7.9			
	2695	PENT	8	S	2152.5	2153	.9	3.2	1.6		
	2695	PENT	21	GRF	2157.0	2205	45.0	9.0	3.6		
	2695	PENT	40	F	2159.0	2159.2	.5	6.0			
	2695	PENT	8	S	2234.0	2234.2	.6	6.9			
	2695	PENT	9	S	2352.0	2352.3	.6	17.4	9.7		
	4995	MANI	3	S	2352.2	2352.5	1.6	14.7	4.9		
	8800	MANI	3	S	2352.2	2352.5	1.0	68.9	22.9		
19	260	ONDR	44	NS	0800.0E		410.0D	57	7		
	536	ONDR	44	NS	0800.0E		410.0D	26	3		
	127	TORN	43	NS	0929.0	0944.8	128.0	82	1.4		VO
	700	SYDN	8	S	0014.1	0014.2	.2				
	1400	SYDN	8	S	0014.3	0014.6	.4				
	2930	VORO	3	S	0015.0	0017	60.0	113			
	8800	MANI	4	S/F	0019.7	0023.1	6.3	144.2	48.1		
	4995	MANI	4	S/F	0019.7	0023.2	6.3	70.6	23.5		
	1400	SYDN	40	F	0020.1	0021.5	4.2				
	2695	MANI	4	S/F	0021.0	0023.1	5.0	50.9	16.9		
	1415	MANI	4	S/F	0412.0	0412.3	14.0	79.6	25.6		
	2695	MANI	4	S/F	0414.0	0419.3	12.0	280.1	93.3		
	4995	MANI	47	GB	0415.0	0419.2	11.0	766.4	255.5		
	9800	MANI	47	GB	0416.7	0418.7	9.3	2101.0	700.3		
	17000	NOBE	45	C	0417.5	0418.4	5.5	1323			R
	3040	GORK	3	S	0452.4	0454.0	2.9	12	3		
	606	MANI	4	S/F	0452.7	0500.8	10.3	97.5	32.5		
	2695	MANI	4	S/F	0453.0	0501.0	9.0	28.3	9.4		
	4995	MANI	4	S/F	0453.0	0501.0	9.0	11.7	3.9		
	1415	MANI	4	S/F	0453.2	0500.9	8.8	446.0	148.7		
	950	GORK	45	C	0459.4	0459.6	2.0	55 D			
	950	GORK			0459.4	0500.8		55 D			
	2950	GORK	3	S	0459.6	0500.9	1.8	24	10		
	650	GORK	4	S/F	0500.3	0500.7	1.0	79	20		
	1415	MANI	4	S/F	0619.4	0622.1	4.8	80.6	26.9		
	4995	MANI	2	S/F	0619.4	0621.6	5.2	7.9	2.6		
	6100	KISV	45	C	0620.0	0622.5	5.0	17			
	6100	KISV			0620.0	0622.6		16			
	650	GORK	4	S/F	0621.0	0621.4	1.1	49	16		
	606	MANI	4	S/F	0621.1	0621.4	2.1	53.3	17.7		
	2695	MANI	4	S/F	0621.1	0621.6	1.1	48.1	16.0		
	9100	GORK	2	S/F	0621.1	0621.6	2.3	19	10		
	8800	MANI	4	S/F	0621.2	0621.6	2.0	16.5	5.5		
	950	GORK			0621.2	0622.2		38			
	950	GORK	46	C	0621.2	0621.6	2.0	54			
	2950	GORK	3	S	0621.3	0621.5	2.1	50	25		
	10400	BERN	1		0836.4	0836.9	1.0	10.0			
	8400	BERN	1		0836.4	0836.9	1.0	14.0			
	3100	CRIM	1	S	0836.5	0837.2	1.5	12	4		
	9100	GORK	1	S	0836.7	0837.4	5.3	13	6		
	127	TORN	8	S	0844.9	0845.3	.9	20	10		
	9100	GORK	23	GRF	0903.5	1221.0	236.0	38			
	127	TORN	48	C	0912.6	0914.9	3.3	263	47		
	930	BORD	41	F	0914.2	0914.3	.4	22	2		
	930	BORD	41	F	0944.6	0944.9	.5	34	2		
	1470	POTS	8	S	1000.0	1000.5	.5	11			
	1470	POTS	8	S	1026.0	1026.4	.8	9.2			
	10400	BERN	22		1053.9	1103.0	51.0	25.0			
	8400	BERN	22		1053.9	1108.6	51.0	19.0			
	9500	POTS	20	GRF	1100.0	1103	40.0	26			
	1470	POTS	20	GRF	1101.0	1109	24.0	2.9			
	3000	POTS	20	GRF	1102.0	1106.5	47.0	7.0			
	9100	GORK	1	S	1103.0	1103.4	2.1	11	6		
	10400	BERN	47		1153.7	1157.8	160.0	3976.0			
	8400	BERN	47		1153.7	1157.8	160.0	4700.0			
	9400	HUAN		S	1153.8	1157.0	7.0	5743.6	1774.3		R
	9100	GORK	47	GB	1154.9	1157.6	11.0	5920			
	2650	DWIN	45	C	1155.0		15.0	430 D			
	10715	DWIN	45	C	1155.0		30.0	220 D			
	950	GORK	20	GRF	1155.0	1158.8	11.2	23			
	9500	POTS	29	PBI	1155.2	1157 U	125.0	3840 U			
	3000	POTS	29	PBI	1155.5	1157.4	125.0	1825			
	808	ONDR	45	C	1156.0	1158.8	12.0	18	13		
	2950	GORK	3	S	1156.1	1158.0	6.5	1780			
	2950	GORK			1156.1	1202.6	60.0	94			
	1470	POTS	29	PBI	1156.5	1157.5	129.0	157			
	930	BORD	3	S	1156.6	1158.5	11.4	27	13		
	9400	HUAN		PBI	1200.8	1200.8	123.4	201.3	22.2		R
	2800	OTTA	260	FAL	1235.0	1425	110.0	-18.0			
	7000	SAOP	45	C	1254.0						SATURATION
	2800	OTTA	21	GRF	1430.0	1520	90.0	4.6	3.0		
	2800	OTTA	1	S	1439.3	1439.7	1.0	4.8	2.3		
	2800	OTTA	3	S	1620.0	1621.2	3.0	33.4	16.9		
	9400	HUAN		S	1620.0	1621.3	2.1	57.8	30.2		R
	7000	SAOP	4	S/F	1621.3E	1621.3	5.6	74.0			11R CALIBRATION
	9400	HUAN		PBI	1622.1	1622.1	14.5	11.6	5.8		O

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
19	2800	OTTA	29	PBI	1623.0	1623	6.0	6.6	3.0		
	2800	OTTA	21	GRF	1640.0	2022	340.0	13.2	6.6		
	2800	OTTA	1	S	1945.0	1946.5	3.0	2.4	1.6		
	2800	OTTA	1	S	2001.0	2001.6	3.0	3.8	1.3		
	2695	PENT	1	S	2120.0	2120.5	1.0	3.8	1.9		
	2695	PENT	6	S	2152.1	2152.5	.8	3.4	1.7		
	17000	NOBE	20	GRF	2313.9	2314.7	22.0	36			R
	2695	PENT	3	S	2314.5	2316.5	5.0	25.0	12.5		
	4995	MANI	4	S/F	2314.7	2317.3	4.3	16.9	5.6		
	8800	MANI	4	S/F	2314.7	2315.8	4.3	44.1	14.7		
	2695	MANI	4	S/F	2316.0	2317.3	3.0	28.9	9.6		
	1415	MANI	1	S	2316.0	2317.3	6.0	9.9	3.0		
20	260	ONDR	44	NS	0750.0E		412.0D	34	2		
	17000	NOBE	3	S	0256.3	0257.0	1.8	46			L
	5730	IRKU	1	S	0256.6	0257.0	2.0	13			R
	4995	MANI	3	S	0256.8	0257.1	2.0	12.2	4.0		
	8800	MANI	3	S	0256.8	0257.1	1.2	30.4	10.1		
	17000	NOBE	21	GRF	0300.0	0304.8	120.0D	21			O
	1415	MANI	4	S/F	0301.2	0304.0	6.4	17.6	5.8		
	5730	IRKU	2	S	0302.0	0304.4	14.0	163			R
	8800	MANI	4	S/F	0302.2	0304.8	4.3	116.8	38.9		
	4995	MANI	4	S/F	0302.2	0304.8	6.6	138.2	46.0		
	2695	MANI	4	S/F	0303.6	0304.6	4.3	127.6	42.5		
	17000	NOBE	8	S	0304.2	0304.4	.4	32			R
	1415	MANI	4	S/F	0520.9	0523.0	3.4	33.0	11.0		
	606	MANI	4	S/F	0521.7	0523.0	2.4	61.2	20.4		
	100	HIRA	46	C	0531.0	0531	1.0	900	100		ML
	6100	KISV	4	S/F	0551.0	0554.3	6.0	314			
	3100	CRIM	3	S	0551.0	0554.5	7.0	394	134		
	606	MANI	2	S/F	0552.0	0552.8	2.5	10.1	3.4		
	5730	IRKU	2	S	0552.0	0553.5	10.0	67 D			R
	9100	GORK	21	GRF	0552.1	0557.0	126.0	34			
	4995	MANI	4	S/F	0552.2	0554.5	10.2	488.2	162.7		
	2950	GORK	21	GRF	0552.2		300.0				
	650	GORK	2	S/F	0552.3	0552.5	1.9	9			
	8800	MANI	4	S/F	0552.8	0554.5	6.8	436.8	145.6		
	9100	GORK	4	S/F	0552.9	0554.7	4.1	290			
	17000	NOBE	4	S/F	0553.1	0554.1	3.0D	228			R
	2950	GORK	3	S	0553.4	0554.8	4.3	330			
	2695	MANI	3	S	0553.7	0554.7	7.6	290.2	96.7		
	1415	MANI	3	S	0553.7	0555.0	4.3	16.5	5.5		
	950	GORK	1	S	0554.0	0554.6	3.0	4.2			
	6100	KISV	29	PBI	0557.0	0557	5.0	14			
	6100	KISV	1	S	0610.0	0613	6.0	4			
	202	IZMI	41	F	0713.5	0713.8	1.3	115			
	536	ONDR	46	C	0805.0	0904.4	80.0	91	40		
	9100	GORK	22	GRF	0907.5	0913.2	13.4	10	5		
	9100	GORK	20	GRF	0943.9	0947.8	26.0	13	6		
	10400	BERN	20		0944.6	0948.0	27.0	10.0			
	8400	BERN	20		0944.6	0948.0	27.0	18.0			
	9500	POTS	20	GRF	0945.0	0947	35.0	16			
	3000	POTS	20	GRF	0945.0	0948	38.0	12			
	3100	CRIM	1	S	0946.0	0948.0	3.0	15	5		
	3100	CRIM	29	PBI	0949.0	0949.0	34.0	10			
	536	ONDR	46	C	1011.0	1045	38.0D	117	54		
	9400	HUAN		C	1111.0	1112.5	6.1	29.2	9.6		L
	10400	BERN	2		1111.2	1112.5	11.0	13.0			
	8400	BERN	2		1111.2	1112.5	11.0	25.0			
	7000	SAOP	3	S	1111.4	1112.5	6.2	14.0			18L
	9500	POTS	3	S	1111.5	1112.4	2.0	23			
	6100	KISV	4	S/F	1112.0	1112.5	2.0	8			
	930	BORD	8	S	1112.4	1112.5	.3	20	2		
	7000	SAOP	46	C	1131.0	1154.4	6.9	209.0			7R
	6100	KISV	28	PRE	1144.0	1146.5	6.0	4			
	9400	HUAN		C	1150.3	1154.2	5.5	150.5	58.4		R
	6100	KISV	4	S/F	1151.0	1154.5	14.0	119			
	8400	BERN	46		1151.1	1154.3	37.0	150.0			
	10400	BERN	46		1151.1	1154.3	37.0	117.0			
	9500	POTS	4	S/F	1151.5	1154.5	6.0	142			
	3000	POTS	4	S/F	1151.7	1154.8	5.8	82			
	10715	DWIN	45	C	1152.0	1154	8.0	110	50		
	2650	DWIN	45	C	1152.0	1155	5.0	65	40		
	9400	HUAN		PBI	1155.8	1155.8	86.0	26.1	7.0		O
	7000	SAOP	1	S	1356.0	1357.0		9.0			O
	1470	POTS	8	S	1357.0	1357.0	.5	9.4			
	2800	OTTA	21	GRF	1430.0	1545	195.0	8.6	4.3		
	8400	BERN	20		1437.3	1440.2	25.0	49.0			
	10400	BERN	20		1437.3	1440.2	25.0	18.0			
	7000	SAOP	45	C	1438.0	1444.0	23.2	21.0			O
	7000	SAOP	41	F	1438.0						2 BURSTS
	9400	HUAN		S	1438.4	1440.6	19.9	21.5	9.2		O
	2800	OTTA	21	GRF	1440.0	1445	20.0	5.8	2.9		
	2800	OTTA	1	S	1441.7	1442	1.0	3.8	1.9		
	7000	SAOP	45	C	1509.0	1522.6		30.0			O CALIBRATION

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20	9400	HUAN		S	1519.0	1522.7	55.2	24.6	8.1		R
	2800	OTTA	20	GRF	1520.0	1523	20.0	12.0	5.0		
	10400	BERN	22		1520.0	1524.7	18.0	16.0			OPR
	7000	SAOP	1	S	1708.0	1708.7	1.2	9.0			15R
	2800	OTTA	20	GRF	1751.0	1753.5	15.0	4.6			
	7000	SAOP	1	S	1751.7	1753.4	2.6	9.0			8R
	7000	SAOP	46	C	1823.0	1823.9	31.4	119.0			8R
	9400	HUAN		C	1823.1	1824.2	6.7	95.2	44.5		R
	2800	OTTA	4	S/F	1823.5	1827.1	6.5	52.0	29.2		
	9400	HUAN		PBI	1829.8	1829.8	68.5	38.4	17.4		R
	2800	OTTA	29	PBI	1830.0	1830	50.0	26.6	9.4		
	2800	OTTA	27A	FRF	2000.0		210.0	3.6	3.3		
	2800	OTTA	24	R	2000.0	2007	7.0	3.6	1.8		
	9400	HUAN		S	2000.4	2019.4	38.6	20.0	13.7		0
	2800	OTTA	24P	R	2007.0		173.0	3.6			
	2800	OTTA	1	S	2040.0	2041.7	4.0	3.4	1.4		
	2800	OTTA	22	GRF	2055.0	2102	70.0	5.6	2.8		
	2695	PENT	4	S/F	2211.2	2213	5.0	10.6	5.0		
	2695	PENT	3	S	2227.0	2229	9.0	13.2	4.4		
	2695	PENT	1	S	2244.5	2246.6	5.0	4.0	1.8		
	2695	PENT	1A	S	2250.0	2253	6.0	3.8	1.9		
	2695	PENT	3	S	2251.2	2252	1.0	15.2	5.4		
	2695	PENT	26	FAL	2300.0	2330	30.0	-3.6	-1.8		
	2930	VORO	3	S	2310.0	2315	10.0	38			
21	260	ONDR	44	NS	0747.0E		406.0D	24			
	200	HIRA	46	C	0346.0	0347	5.0	500	50		WR,WL
	500	HIRA	46	C	0347.7	0349.0	4.0	60	20		
	100	HIRA	46	C	0348.0	0349	4.0	1100	130		ML
	606	MANI	4	S/F	0348.0	0349.8	3.2	30.0	10.0		
	1415	MANI	4	S/F	0348.5	0349.3	3.2	17.1	5.7		
	2950	GORK	20	GRF	0452.0	0457.8	28.1	21			
	9100	GORK	22	GRF	0455.5	0457.8	316.5	30	7.5		
	606	MANI	4	S/F	0507.2	0517.0	13.6	77.2	25.7		
	202	IZMI	41	F	0632.0	0633.2	2.1	90			
	7000	SAOP	46	C	1213.0	1215.8	52.8	154.0			4L
	7000	SAOP	41	F	1213.0						2 BURSTS
	9400	HUAN		C	1214.3	1215.7	5.5	153.9	85.5		L
	9400	HUAN			1214.3	1218.2		150.2			L
	10715	DWIN	45	C	1215.0	1219	5.0	85	60		
	9500	POTS	29	PBI	1215.0	1218.0	55.0	122			
	1470	POTS	20	GRF	1215.0	1217.4	20.0	4.7			
	6100	KISV	45	C	1215.0	1219	6.0	90			
	6100	KISV			1215.0	1217		83			
	3000	POTS	3	S	1215.0	1218.4	6.0	20			
	9400	HUAN		PBI	1219.8	1219.8	64.5	32.6	18.8		L
	2800	OTTA	21	GRF	1225.0	1400	160.0	15.8			
	4995	BOUL	3	S	1319.5	1328.5	15.0	177.0	59.0		
	930	BORD	41	F	1323.8	1324.1	.5	19	2		
	7000	SAOP	46	C	1324.0	1327.8	9.4	250.0			10R
	2800	OTTA	8	S	1324.0	1324	.3	18.4			
	10715	DWIN	3	S	1325.0	1328	10.0	80	40		
	2650	DWIN	3	S	1325.0	1328	10.0	80	40		
	2800	OTTA	3	S	1325.5	1328.3	10.5	97.0	38.2		
	9500	POTS	29	PBI	1326.5	1327.7	36.0	125			
	1470	POTS	20	GRF	1326.5	1329.8	24.0	10			
	3000	POTS	29	PBI	1326.5	1328.6	43.0	104			
	9400	HUAN		PBI	1331.3E	1331.3U	85.8	41.6	15.2		0
	2800	OTTA	29	PBI	1336.0	1336	22.0	16.0	8.0		
	7000	SAOP	1	S	1338.3E	1338.3	.5	8.0			0
	930	BORD	41	F	1401.0	1401.7	2.0	72	4		
	2800	OTTA	1	S	1559.0	1800	3.0	2.4	1.2		
	2800	OTTA	21	GRF	1655.0	1850	170.0	4.8	2.5		
	1420	BOUL	3	S	1758.0E	1759	2.0D	23.0	8.0		
	7000	SAOP	45	C	1758.5	1759.0	.6	12.0			17R 2 PARTS
	2800	OTTA	4	S/F	1758.6	1758.9	1.8	14.6	7.3		
	9400	HUAN		S	1840.7	1904.3	38.1	3.6	2.4		0
	4995	BOUL	3	S	2105.0	2106	2.5	12.0	4.0		
	9400	HUAN		S	2105.2	2106.1	1.8	12.7	8.7		R
	4995	BOUL	8	S	2113.0	2115	4.0	47.0	16.0		
	9400	HUAN		S	2114.7	2115.6	1.8	43.4	22.4		R
	2800	OTTA	4	S/F	2115.0	2115.6	2.5	19.4	7.0		
	9400	HUAN		PBI	2116.5	2116.5	10.9	10.9	7.4		0
	2695	BOUL	3	S	2117.0E	2117.5	1.5D	16.0	5.0		
	4995	BOUL	3	S	2125.0	2125.5	2.0	12.0	4.0		
	4995	BOUL	4	SF	2225.0	2226	3.0	18.0	6.0		
22	100	HIRA	43	NS	0120.0	0700	390.0D	70	15		WL
	127	TORN	43	NS	0650.0	1343.1	510.0	72	21		VO
	260	ONDR	44	NS	0742.0E		404.0D	30	2		
	100	HIRA	44	NS	2050.0E	0655	620.0D	100	34		SL
	200	HIRA	44	NS	2050.0E	0300	620.0D	40	20		ML
	6100	KISV	3	S	0630.0	0632.3	5.0	13			
	3100	CRIM	3	S	0631.0	0632.5	3.0	33	11		
	2950	GORK	3	S	0631.5	0632.3	4.4	23	8		

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22	9100	GORK	1	S	0631.7	0632.2	4.3	8.6	4		
	9100	GORK	20	GRF	0918.8	0921.0	14.0	7	3		
	6100	KISV	20	GRF	0919.0	0922	22.0	4			
	9100	GORK	21	GRF	0937.2	0938.6	137.8	11	5		
	6100	KISV	4	S/F	0957.0	0958	8.0	7			
	6100	KISV	29	PBI	1005.0	1005	33.0	2			
	7000	SAOP	20	GRF	1036.5	1037.3	10.8	15.0			18R
	9100	GORK	1	S	1037.3	1037.9	.9	6.1	3.5		
	6100	KISV	4	S/F	1037.5	1038.7	7.0	11			
	536	ONDR	45	C	1038.2	1041.2	3.5	46	2		
	2800	OTTA	27A	RF	1245.0		250.0	4.8	4.4		
	2800	OTTA	24	R	1245.0	1300	15.0	4.8	2.4		
	9400	HUAN		S	1252.3	1301.7	23.9	6.7	3.1		0
	7000	SAOP	27	RF	1254.0		28.0	9.0			
	7000	SAOP	41	F	1254.0						2 BURSTS
	2800	OTTA	24P	R	1300.0		210.0	4.8			
	9400	HUAN		S	1336.5	1356.7	55.9	5.0	4.0		0
	7000	SAOP	21	GRF	1337.2			9.0			7R
	9400	HUAN		PRE	1510.7	1542.4	31.7	11.8	3.9		0
	10400	BERN	4		1542.3	1542.9	8.0	157.0			OPR
	8400	BERN	4		1542.3	1542.9	8.0	150.0			OPR
	9400	HUAN		S	1542.4	1543.1	2.6	212.4	91.0		R
	7000	SAOP	4	S/F	1542.4	1543.1	3.6	255.0			11R
	2800	OTTA	3	S	1542.5	1543.1	8.0	19.8	5.0		
	9400	HUAN		PBI	1545.0	1545.0	43.4	27.0	7.2		R
	2800	OTTA	1	S	1556.0	1559	5.0	2.4	1.2		
	2800	OTTA	26	FAL	1630.0	1655	25.0	-4.8	-2.4		
	7000	SAOP	40	F	1706.0		87.0				
	2800	OTTA	24O	R	1710.0	1730	20.0	3.2	1.6		
	2800	OTTA	21	GRF	1805.0	1825	85.0	6.2	3.0		
	2800	OTTA	1	S	1808.5	1810	3.0	2.2	1.6		
	9400	HUAN		S	1808.7	1826.0	48.0	13.5	4.6		0
	9400	HUAN		S	1819.0	1820.0	2.3	42.2	25.0		R
	2800	OTTA	3	S	1819.0	1819.6	2.0	11.8	2.8		
	2800	OTTA	8	S	1903.3	1903.3	.1	12.2			
	2695	PENT	24	R	2015.0	2022	17.0	3.2	1.6		
	2695	PENT	27A	RF	2015.0		180.0	3.2	2.9		
	2695	PENT	24P	R	2022.0		143.0	3.2			
	2695	PENT	1	S	2030.9	2031	1.0	4.0	2.0		
	2695	PENT	20	GRF	2050.0	2115	50.0	4.0	2.0		
	2695	PENT	1	S	2218.8	2219	1.2	4.4	2.4		
	2695	PENT	26	FAL	2255.0	2315	20.0	-3.2	-1.6		
23	127	TORN	44	NS	0600.0E	1438.6	580.0D	200 D	36		V2 SUNRISE
	202	IZMI	44	NS	0600.0E		360.0D	65			
	260	ONDR	44	NS	0750.0E		355.0D	34	3		
	100	HIRA	44	NS	2050.0E	0000	630.0D	25	20		ML
	200	HIRA	44	NS	2050.0E	0210	630.0D	60	30		ML
	202	IZMI	5	S	1014.5	1015.0	1.0	600	300		
	7000	SAOP	3	S	1242.0	1243.1	4.8	10.0			29R
	2800	OTTA	20	GRF	1520.0	1526	28.0	5.8	2.9		
	2800	OTTA	20	GRF	1550.0	1630	90.0	8.8	3.2		
	9400	HUAN		S	1801.0	1825.0	37.9	5.6	2.0		0
	2800	OTTA	21	GRF	2020.0	2110	150.0	5.6	3.0		
	2800	OTTA	1	S	2031.0	2034	5.0	3.0	1.5		
	100	HIRA	46	C	2050.0	2051	2.0	200	25		
24	127	TORN	44	NS	0600.0E	1107.3	520.0D	418	3.9		V1 SUNRISE
	202	IZMI	44	NS	0600.0E		360.0D	55			
	260	ONDR	44	NS	0750.0E		400.0D	88	5		
	202	IZMI	4	S/F	0633.2	0634.0	1.0	400	150		
	234	POTS	42	SER	0633.4	0635.8	2.7	250	2		
	3100	CRIM	1	S	0929.0	0929.5	2.0	4	1		
	2950	GORK	1	S	0929.5	0929.8	.7	10			
	9100	GORK	20	GRF	0942.0	0944.4	18.0	8.4	3		
	3100	CRIM	3	S	0943.0	0954.5	5.0	22	7		
	3000	POTS	3	S	0943.0	0944.5	3.5	19			
	8400	BERN	3		0943.3	0944.3	4.0	13.0			
	10400	BERN	3		0943.3	0944.3	4.0	7.0			
	9500	POTS	1	S	0943.5	0944.5	2.5	6.1			
	2950	GORK	3	S	0946.4	0947.5	3.0	49	23		
	3100	CRIM	41	F	0948.0	0950.5	8.0	3	1		
	3100	CRIM			0948.0	0953.0		4			
	9100	GORK	20	GRF	1016.5	1156.7	118.0	10.8			
	2950	GORK	21	GRF	1016.8	1034.8	120.0	20			
	234	POTS	8	S	1140.6	1140.7	.2	160	40		
	2950	GORK	3	S	1156.9	1157.2	.8	206	100		
	234	POTS	42	SER	1237.1	1246.9	11.0	280	1		
	2800	OTTA	20	GRF	1310.0	1430	130.0	7.8	4.4		
	234	POTS	41	F	1345.3	1346.9	1.6	700	3		
	7000	SAOP	40	F	1406.0		17.0				
	9400	HUAN		S	1554.4	1606.1	74.1	11.5	4.9		0
	2800	OTTA	21	GRF	1555.0	1605	85.0	8.2	4.6		
	7000	SAOP	20	GRF	1556.7		16.0	10.0			0 2 COMPONENTS
	2800	OTTA	2	S/F	1559.0	1559.9	3.0	7.8	3.4		

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24	9400	HUAN	8	S	1753.1	1753.6	1.1	50.0	19.2		L
	2800	OTTA	20	GRF	1835.0	1935	70.0	2.6	1.3		
	2695	PENT	20	GRF	2100.0	2140	105.0	5.8	2.9		
25	200	HIRA	43	NS	0333.0	0555	200.0D	20	5		WL
	127	TORN	43	NS	0832.0	0915.4	388.0U	331	1.5		V1 DISTURBED
	260	ONDR	44	NS	1010.0E		270.0D	18			
	17000	NOBE	20	GRF	0126.9	0144.9	52.0	13			0
	5730	IRKU	1	S	0137.0	0137.9	4.0	18			0
	8800	MANI	3	S	0137.2	0138.3	4.6	38.4	12.8		
	4995	MANI	1	S	0137.7	0138.6	3.6	8.0	2.7		
	9100	GORK	21	GRF	0518.0	0535.0	59.0	9.7	5.5		
	9100	GORK	1	S	0518.4	0518.6	.7	10.9	7		
	2950	GORK	1	S	0531.0	0531.8	1.7	5.9	2.9		
	5730	IRKU	1	S	0531.0	0531.8	3.0	13			L
	9100	GORK	1	S	0531.2	0531.8	.8	6	2.5		
	9100	GORK	1	S	0646.3	0646.5	1.0	3.6	2		
	9100	GORK	1	S	0647.8	0648.3	1.8	2.4	1.5		
	9100	GORK	20	GRF	0659.0	0710.7	26.7	7.2	3		
	234	POTS	4	S/F	0839.6	0839.8	.4	130	10		
	234	POTS	9	S	0903.8	0903.8	.1E	5000	1500		
	9100	GORK	20	GRF	1015.8	1039.7	90.2	9.7	5		
	2950	GORK	1	S	1023.4	1024.6	3.5	4.3	2		
	234	POTS	8	S	1240.4	1240.4	.1E	400	150		
	2800	OTTA	21	GRF	1305.0	1420	135.0	3.6			
	2800	OTTA	8	S	1339.7	1339.7	.1	18.4			
	2800	OTTA	20	GRF	1640.0	1700	60.0	3.8	1.9		
	9400	HUAN		S	1640.2	1657.7	44.1	9.0	4.8		0
	9400	HUAN		S	1733.8	1734.5	1.4	9.6	4.0		0
	9400	HUAN		S	1751.0	1811.3	41.2	6.4	3.2		0
	2800	OTTA	21	GRF	1830.0	1902	220.0	7.8	3.9		
	7000	SAOP	21	GRF	1852.0		36.0	10.0			0
	4995	BOUL	3	S	1854.0	1855	2.5	19.0	6.0		
	7000	SAOP	3	S	1855.2E	1855.2		10.0			0
	2800	OTTA	21	GRF	2043.0	2050	47.0	5.8	2.9		
	4995	BOUL	3	S	2045.0	2046.5	3.0	47.0	16.0		
	9400	HUAN		S	2046.2	2047.4	2.4	20.8	14.2		L
	2800	OTTA	3	S	2047.0	2047.5	3.0	10.4	3.5		
	9400	HUAN		PBI	2048.6	2048.6	33.9	11.2	5.4		0
26	200	HIRA	43	NS	0109.0	0300	400.0D	15	5		ML
	260	ONDR	44	NS	0750.0E		362.0D	67	5		
	536	ONDR	43	NS	0846.0		306.0D	22	2		
	127	TORN	44	NS	1030.0E	1259.2	280.0D	518	5.3		V1 DISTURBED
	200	HIRA	44	NS	2052.0E	2320	240.0D	10	5		
	234	POTS	41	F	0710.5	0711.1	.8	220	3		
	9100	GORK	1	S	0735.0	0735.5	1.0	12.9	7		
	9100	GORK	1	S	0751.5	0754.0	5.1	4.7	2		
	9100	GORK	1	S	0813.3	0813.8	1.4	8.2	4.5		
	2650	DWIN	1	S	1404.0	1405	2.0	20	18		
	2650	DWIN	8	S	1430.0			75			
	2800	OTTA	21	GRF	1435.0	1438	14.0	3.0	1.5		
	7000	SAOP	45	C	1435.0	1436.2	12.0	14.0			0
	2800	OTTA	1	S	1435.5	1436	1.0	4.4	2.2		
	7000	SAOP	8	S	1618.2	1618.6	.5	17.0			0
	7000	SAOP	3	S	1721.6	1722.8	3.4	13.0			0
	9400	HUAN		S	1721.8	1722.9	2.4	14.6	9.6		0
	2800	OTTA	240	R	1735.0	1755	20.0	3.0	1.5		
	7000	SAOP	3	S	1751.0	1754.2	4.6	13.0			0
	2800	OTTA	240	R	1820.0	1935	75.0	4.8	2.0		
	9400	HUAN		S	1820.2	1821.4	2.1	17.8	8.3		R
27	260	ONDR	44	NS	0752.0E		370.0D	27			
	6100	KISV	8	S	0837.0	0837.5	1.0	3			
	29	UPIC	8	S	1020.2	1020.4	.5				
	33	UPIC	8	S	1020.5	1020.5	.4				
	9400	HUAN		S	1357.5	1430.3	47.5	4.8	1.5		0
	7000	SAOP	27	RF	1400.6			8.0			9R
	2800	OTTA	20	GRF	1710.0	1745	115.0	4.4	3.0		
	2800	OTTA	260	FAL	1925.0	1950	25.0	-4.4	-2.2		
28	260	ONDR	44	NS	0800.0E		375.0D	84	7		
	200	HIRA	44	NS	2055.0E	2235	600.0D	25	10		WL
	100	HIRA	44	NS	2055.0E	0550	600.0D	35	15		SL
	6100	KISV	27	RF	0824.0	0828	3.0				
	29	UPIC	4	S/F	0958.5	0958.7	.4				
	33	UPIC	4	S/F	0958.5	0958.6	1.0				
29	260	ONDR	44	NS	0730.0E		373.0D	44	5		
	100	HIRA	44	NS	2100.0E	0307	600.0D	140	53		SL
	200	HIRA	44	NS	2100.0E	2305	600.0D	35	15		ML
	100	HIRA	45	C	0012.0	0012.2	1.0	3600	1500		WL
	500	HIRA	46	C	0044.6	0045.9	2.0	25	8		WR
	202	IZMI	4	S/F	0747.8	0748.0	1.5	90	45		
	29	UPIC	4	S/F	1030.2	1030.5	.7				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

OCTOBER 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
29	33	UPIC	4	S/F	1030.2	1030.3	.7				
	9100	GORK	1	S	1030.4	1030.6	.7	5	2.5		
	3100	CRIM	25	R	1032.0	1210.0		13			
	536	ONDR	2	S/F	1115.0	1117.7	7.0	10	7		
	3000	POTS	22	GRF	1115.0	1208.5	114.0	18			
	9500	POTS	22	GRF	1115.0	1209	120.0	12			
	950	GORK	2	S/F	1116.9	1118.0	2.0	9			
	650	GORK	1	S	1117.0	1118.2	2.0	9	4		
	29	UPIC	2	S/F	1135.4	1135.6	.4				
	33	UPIC	3	S	1135.4	1135.5	.4				
	9400	HUAN		S	1205.6	1209.2	21.7	9.6	4.1		O
	536	ONDR	46	C	1206.0	1208.8	4.0	55	6		
	228	HARS	45	C	1206.6	1207.8	1.8	240	80		
	2950	GORK	1	S	1206.9	1208.5	2.5	6.7	3		
	3100	CRIM	1	S	1207.0	1208.5	3.0	10	3		
	9100	GORK	1	S	1207.5	1209.0	4.0	7	3.5		
	2800	OTTA	20	GRF	1300.0	1340	55.0	4.2	2.1		
	2800	OTTA	22	GRF	1420.0E	1523	105.0D	5.8			
	7000	SAOP	45	C	1936.0	1939.4	5.2	108.0			12L
	2695	BOUL	3	S	1936.0	1939	10.0	19.0	6.0		
	9400	HUAN		S	1937.1	1939.3	3.9	64.2	29.3		L
	2800	OTTA	4	S/F	1937.5	1939.5	9.5	56.0	15.6		
	9400	HUAN		PBI	1941.0	1941.0	61.5	8.0	6.8		L
	2800	OTTA	30	PBI	1946.0	1946	30.0	2.2	1.1		
	2800	OTTA	1	S	1950.0	1950.3	1.0	3.4	1.5		
30	202	IZMI	44	NS	0600.0E		240.0D	45			
	260	ONDR	44	NS	0750.0E		398.0D	30	2		
	200	HIRA	44	NS	2100.0E	0600	600.0D	15	10		WL
	100	HIRA	44	NS	2100.0E	0536	600.0D	110	34		ML
	2930	VORO	3	S	0120.0	0125	10.0	23			
	650	GORK	3	S	0529.8	0530.2U	1.0	60 D	30		
	950	GORK	20	GRF	0530.0	0533.5	9.4	10	5		
	2950	GORK	1	S	0531.9	0533.1	2.0	6	3		
	2950	GORK	1	S	0706.1	0706.5	1.0	2.1	1		
	228	HARS	45	C	0710.0	0712.0	4.2	295	115		
	202	IZMI	41	F	0713.3	0713.5	1.0	135			
	9100	GORK	1	S	0722.8	0723.1	2.5	3	1.5		
	9100	GORK	1	S	0845.6	0845.9	1.6	5.5	2.5		
	3040	GORK	1	S	1006.3	1007.9	2.6	6.1	3		
	9100	GORK	1	S	1007.6	1007.9	.8	4	2		
	9100	GORK	1	S	1012.6	1013.4	1.4	2.5	1.2		
	29	UPIC	42	SER	1035.5	1035.6	15.5				
	33	UPIC	42	SER	1035.8	1035.8	14.2				
	3100	CRIM	1	S	1306.0	1308.0	3.0	9	3		
	9400	HUAN		S	1625.2	1649.6	54.6	6.9	4.3		O
	2800	OTTA	20	GRF	1630.0	1655	50.0	3.6	2.0		
	2800	OTTA	20	GRF	1807.0	1810	16.0	2.6	1.3		
	2800	OTTA	1	S	1849.0	1852	5.0	2.2	1.1		
	2800	OTTA	20	GRF	1920.0	2015	80.0	3.6	2.9		
	2695	PENT	260	FAL	2120.0	2140	20.0	-3.6	-1.8		
31	127	TORN	44	NS	0600.0E	0933.6	450.0D	121	7.2		V1 SUNRISE
	260	ONDR	44	NS	0730.0E		410.0D	25	1		
	100	HIRA	44	NS	2100.0E	0243	600.0D	50	19		ML
	200	HIRA	44	NS	2100.0E	0247	600.0D	25	10		ML
	4995	MANI	3	S	0329.0	0330.3	2.4	29.0	9.7		
	2695	MANI	1	S	0329.5	0330.3	1.9	8.3	2.8		
	8800	MANI	3	S	0329.7	0330.3	1.7	31.1	10.4		
	9100	GORK	1	S	0756.9	0757.2	2.7	4	2		
	3100	CRIM	25	R	0800.0	1200.0	240.0	18			
	9100	GORK	1	S	0849.3	0849.4	1.5	6.5	3		
	3000	POTS	3	S	1006.0	1007.4	3.5	6.5			
	3100	CRIM	1	S	1006.5	1007.5	2.0	7	2		
	9500	POTS	1	S	1006.5	1007.5	2.5	4.6			
	2950	GORK	1	S	1006.7	1007.5	2.5	4.4	2		
	9100	GORK	1	S	1006.9	1007.4	1.7	6.5	3		
	3100	CRIM	3	S	1030.0	1045.0	29.0	24	8		
	2950	GORK	20	GRF	1031.5	1045.2	72.0	24	12		
	9100	GORK	20	GRF	1031.7	1055.3	58.3	17	5.5		
	2800	OTTA	21	GRF	1425.0	1440	50.0	4.4	2.2		
	2800	OTTA	8	S	1428.1	1428.2	.5	3.6	1.8		
	2800	OTTA	20	GRF	1605.0	1620	100.0	2.6	1.8		
	9400	HUAN		S	1623.7	1639.3	41.0	5.0	1.8		O
	2800	OTTA	1	S	2040.0	2045	10.0	2.8	1.2		

Reports received from the following observatories:

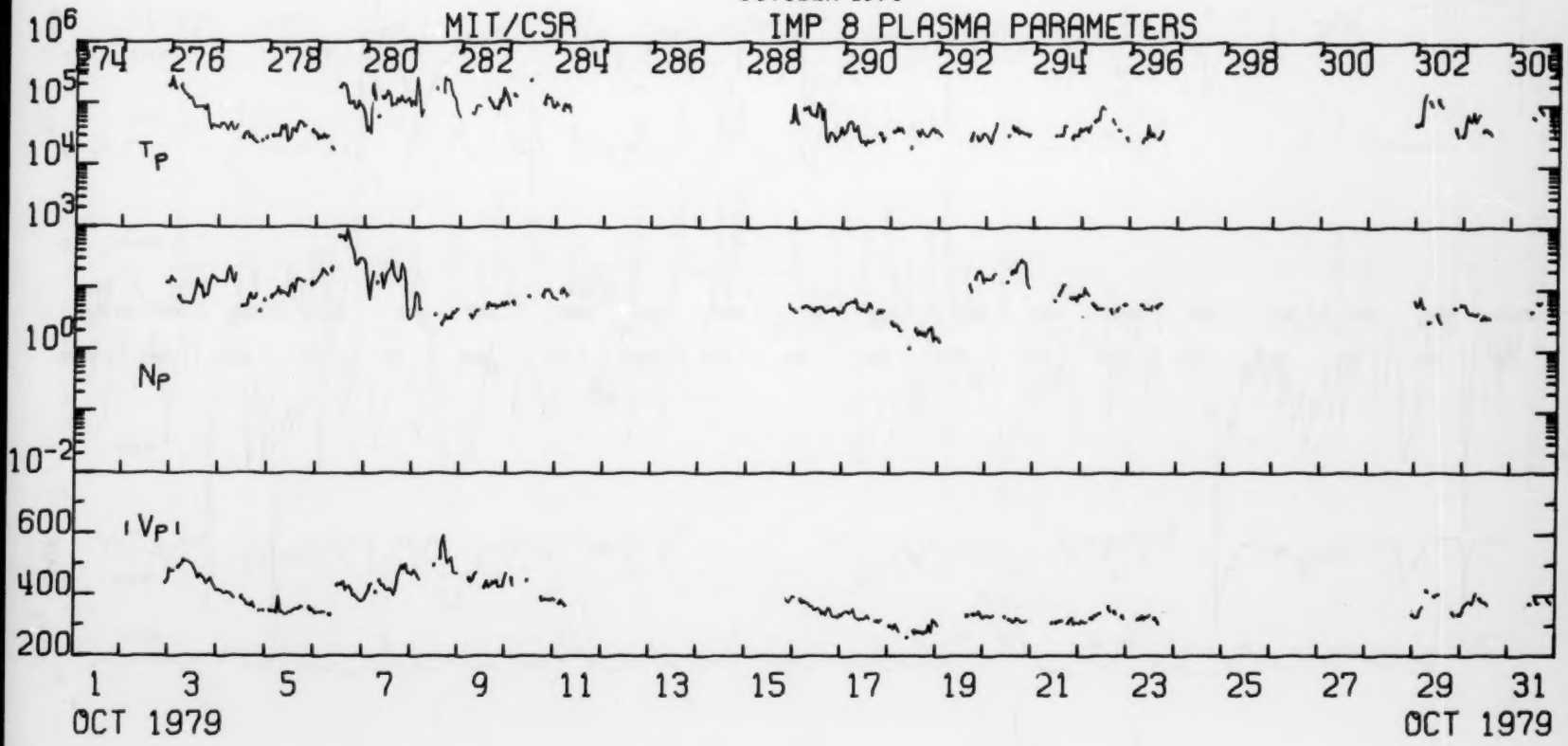
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = IRKUTSK
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 8 SOLAR WIND PLASMA

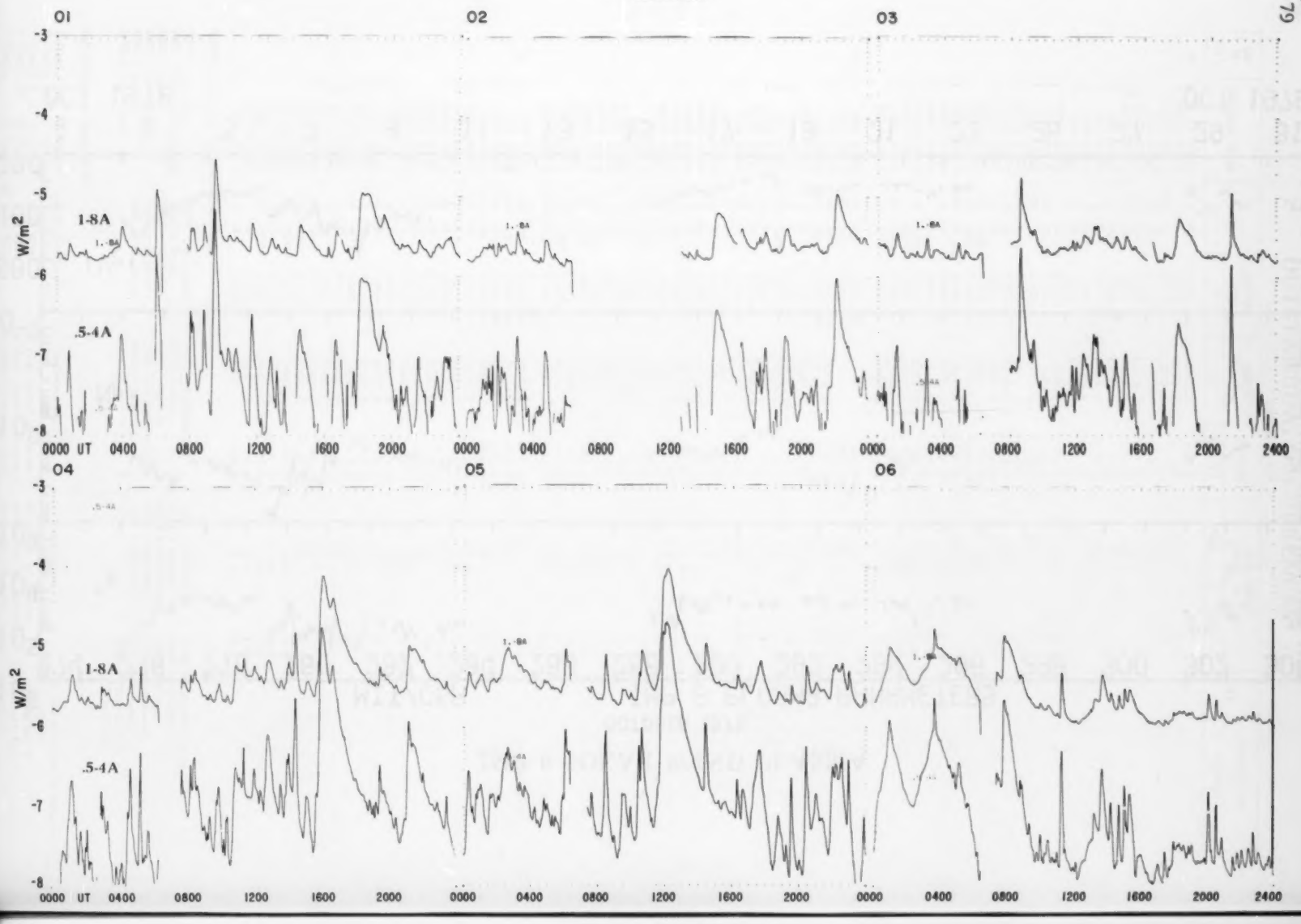
OCTOBER 1979



23 Oct 79

SMS-GOES X-RAYS

OCTOBER 1979



SMS-GOES X-RAYS

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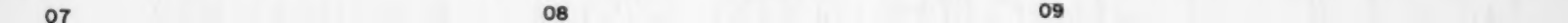

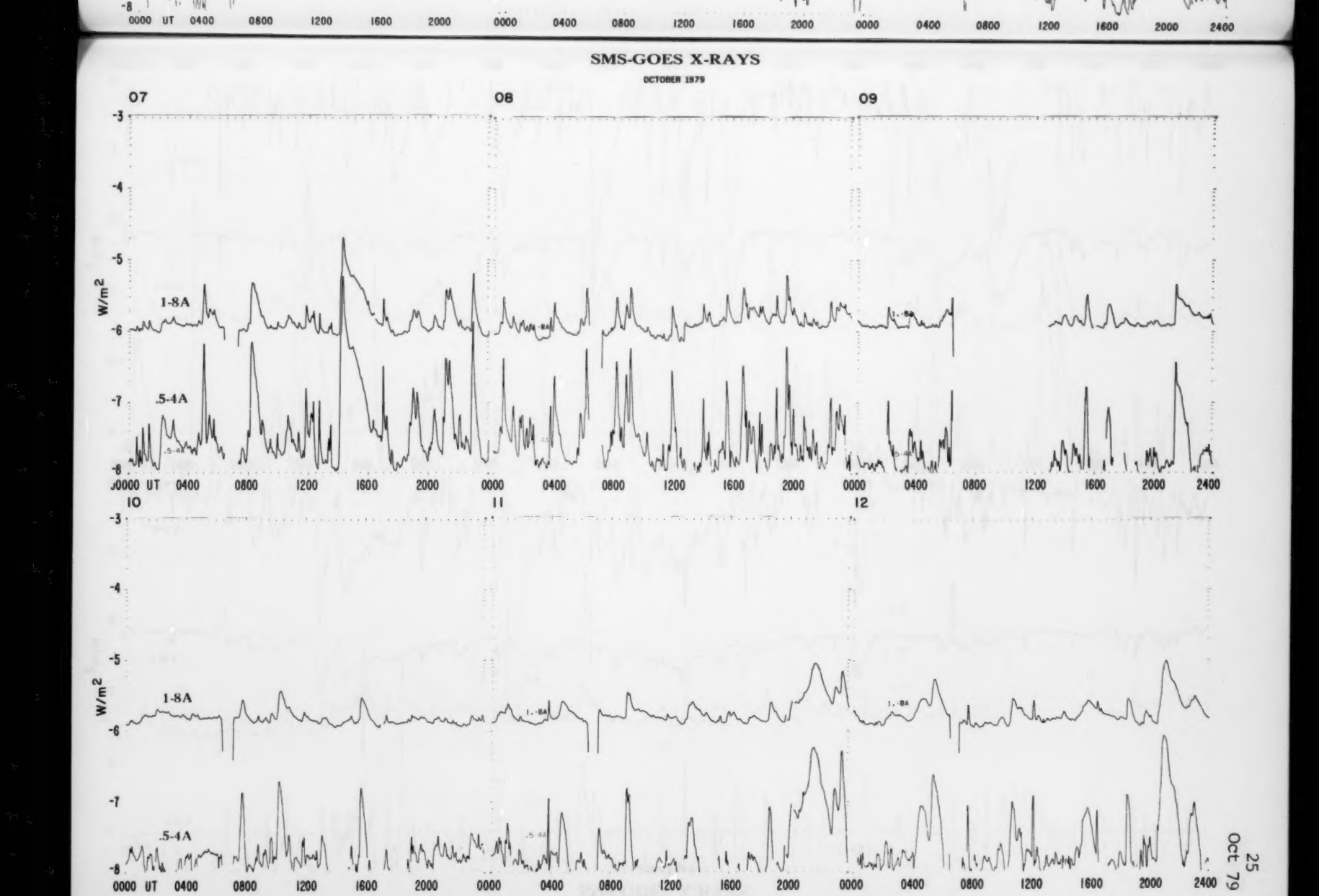
SMS-GOES X-RAYS
OCTOBER 1979
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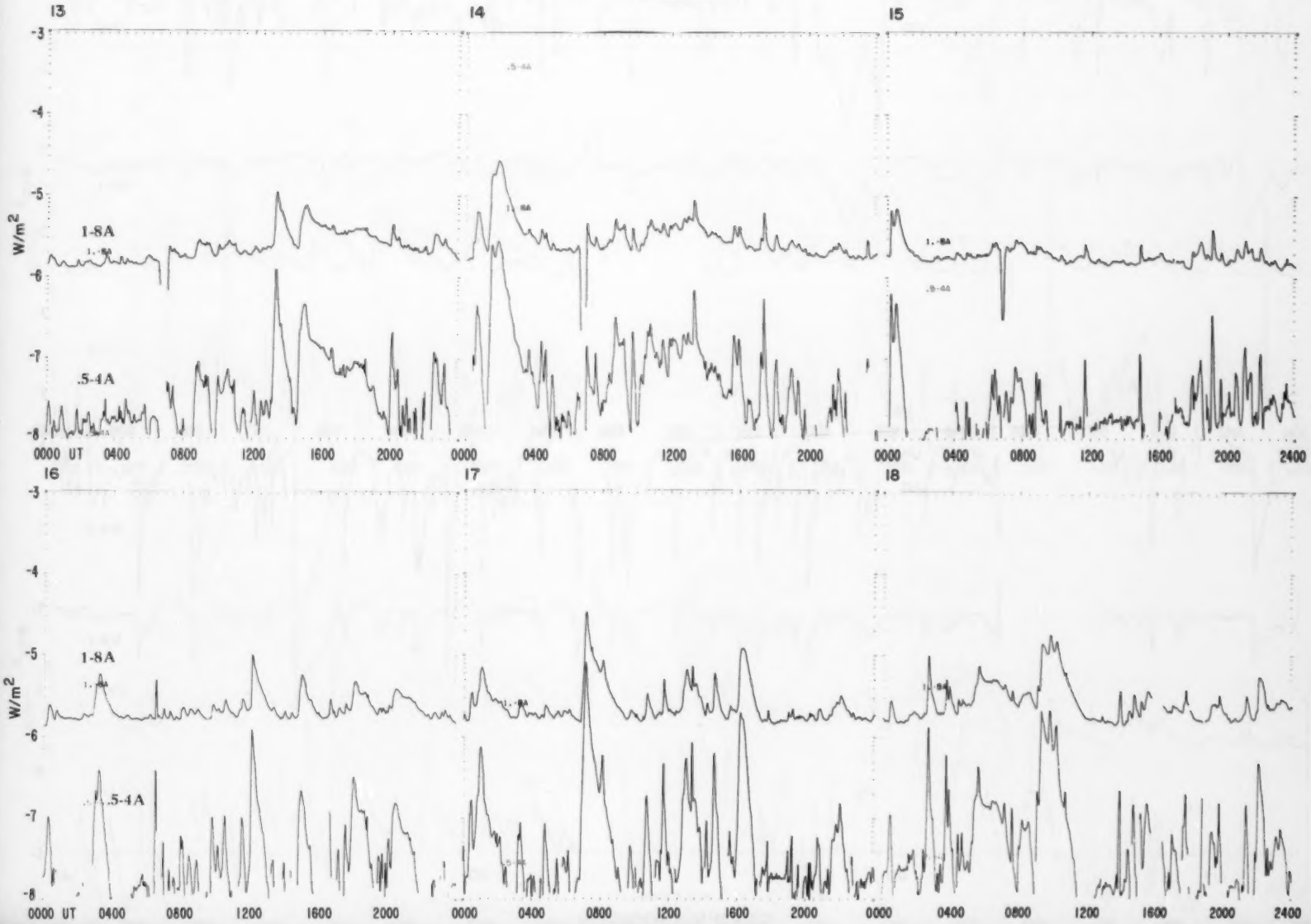
25 Oct 79

SMS-GOES X-RAYS

OCTOBER 1979



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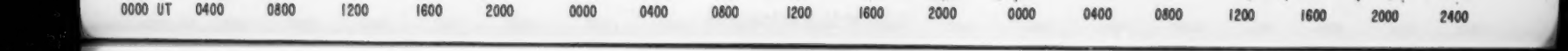

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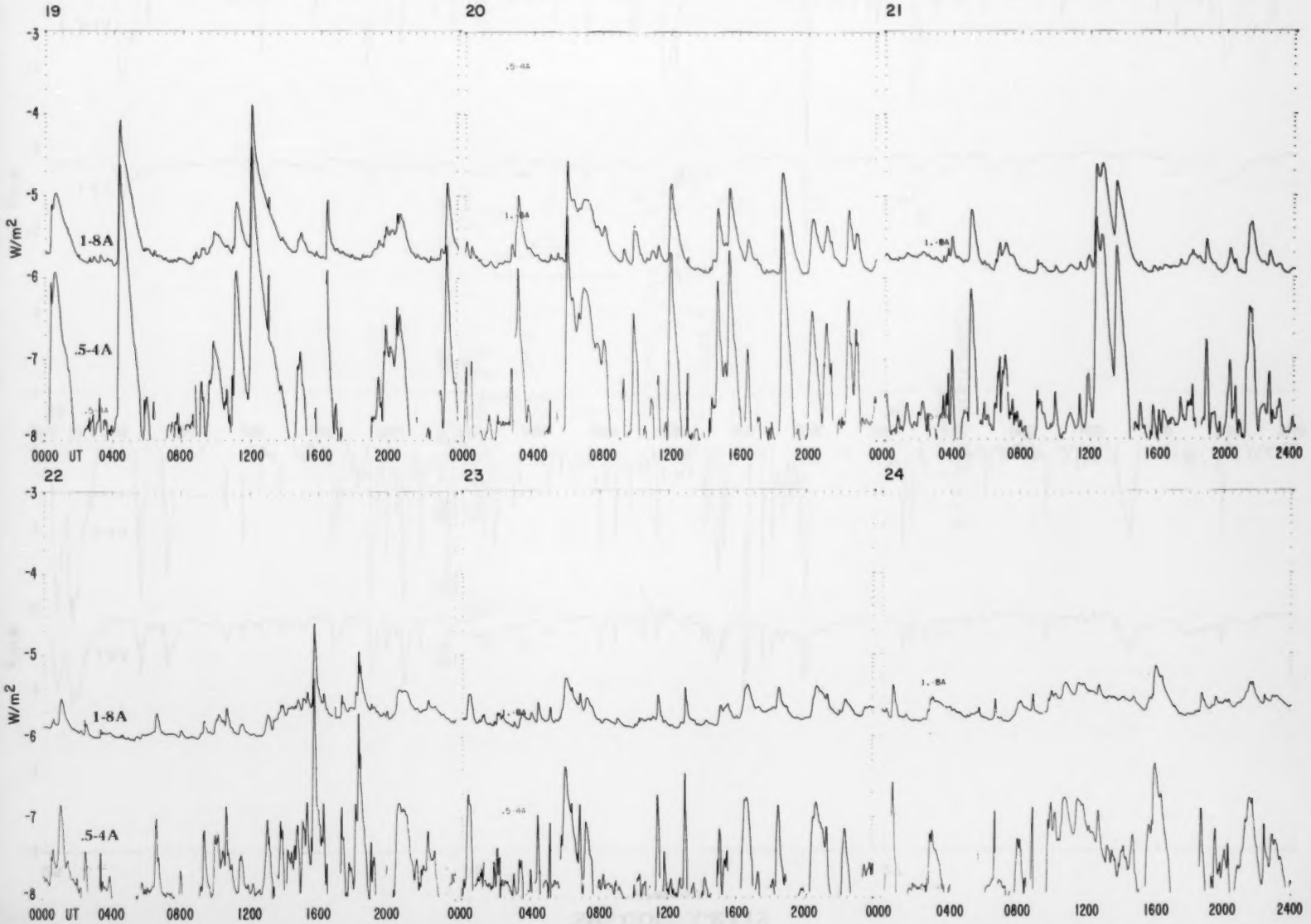

27 Oct 79

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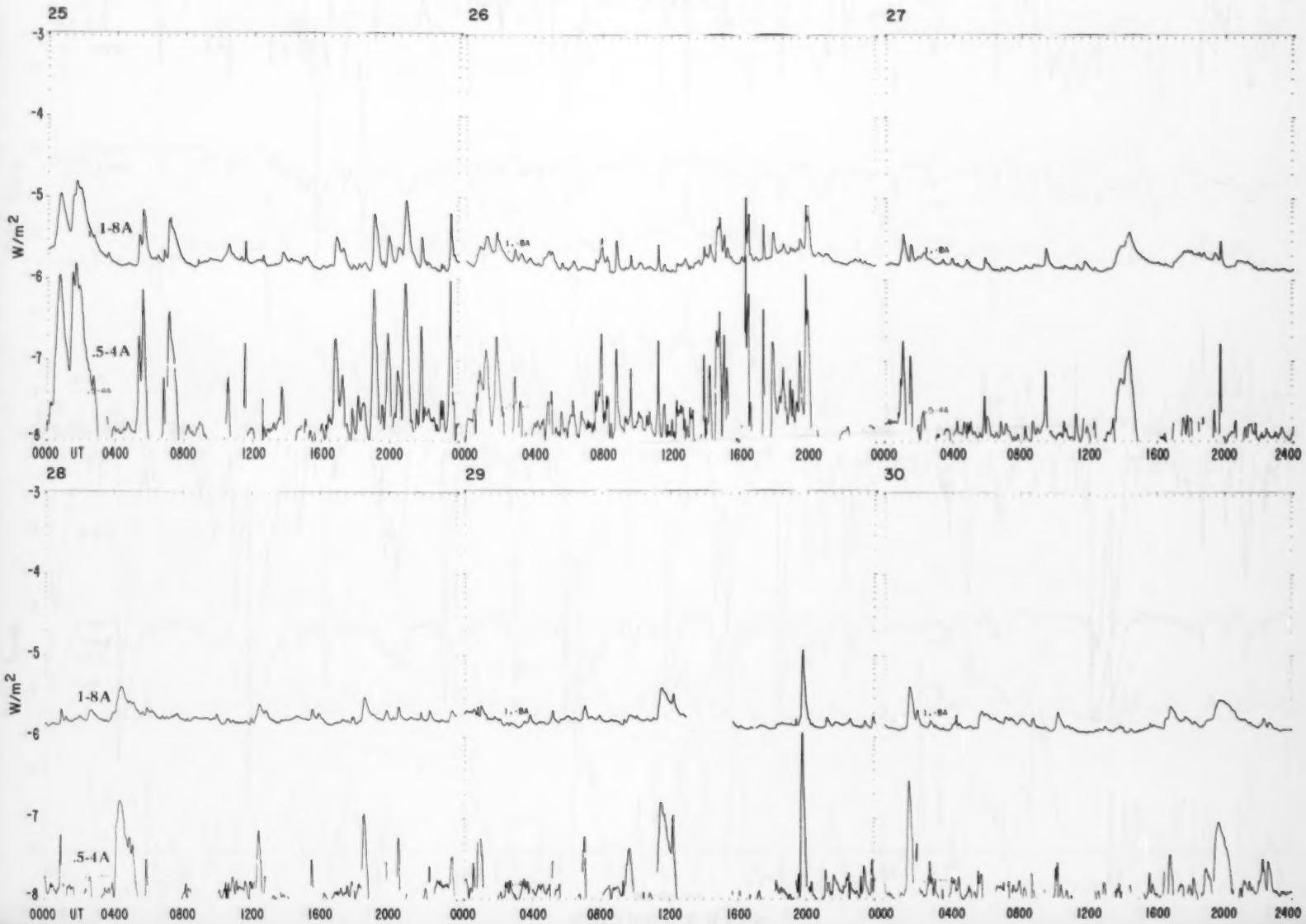
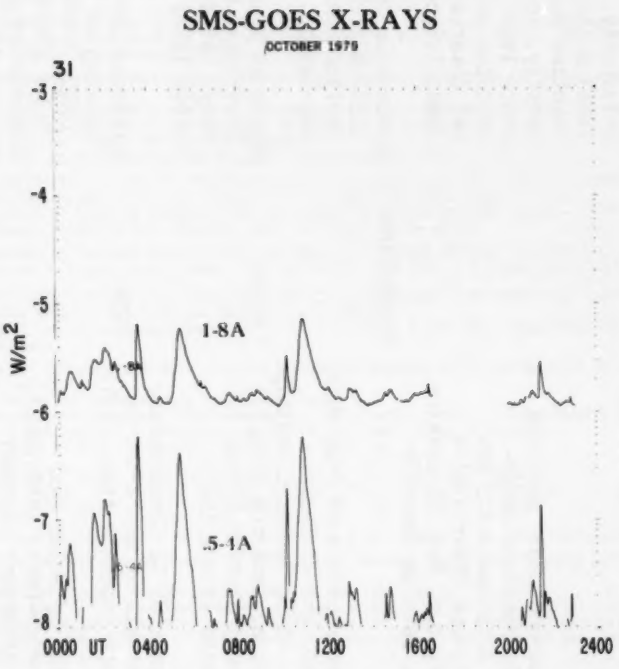
OCTOBER 1979




SMS-GOES X-RAYS
OCTOBER 1979
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W/m2
1-8A
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0000 UT
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0800
1200
1600
2000
2400

Data Available: Some data available in publication form are cited here. A list is given, along with addresses of the responsible institutions. The WDC-A for Solar-Terrestrial Physics publishes the Toyokawa, Ottawa and Penticton radio data in its monthly publication, *Solar-Geophysical Data*. The WDC-A for Solar-Terrestrial Physics also receives most of the periodicals when they become available.

Belgium: *Bulletin d'Observations: Activite Solaire - Observations Radioelectriques Solaires - 600 MHz (Humain, Belgium)* Observatoire Royal de Belgique, Ave. Circulaire 3, Brussels, Belgium (monthly since 1962)

Canada: *Solar Noise Observations at 2800 Mc/s (Ottawa - ARO) and 2700 Mc/s (Penticton - DRAO)* Series C Monthly Report, National Research Council, Radio Astronomy Section Ottawa 7, Ontario, Canada (since 1947)

France: *Carte Synoptiques de la Chromosphere Solaire* Observatoire de Paris, 92 Meudon, France (monthly since 1931)

Germany: *Daily Mean Value of Solar Flux Density* Heinrich-Hertz Institut, 1199 Berlin-Adlershof, Rudower Chaussee 5, G.D.D. (monthly since Jul 1957)

Italy: *Solar Phenomena - Monthly Bulletin and Photographic Supplement* Osservatorio Astronomica di Roma, Monte Mario, Rome, Italy (monthly since 1958) *Osservazion Solari, Solar Flux and Distinctive Events* Osservatorio Astronomico Di Trieste (quarterly since 1965) *Solar Observations made at Catania Astrophysical Observatory* (annually since 1967)

Japan: *Monthly Report of Solar Radio Emission* Radio Astronomy Section, Research Institute of Atmospherics, Nagoya University, Toyokawa, Japan (since 1956) *Solar Activity Chart* WDC-C2, Toyokawa Observatory, Nagoya University, Toyokawa, Japan (annually since 1968) *IAU Quarterly Bulletin on Solar Activity* Tokyo Astronomical Observatory, Mitaka, Tokyo, Japan (since 1978)

Netherlands: *Geomagnetic Data* IAGA Bulletin No. 12 (1932-69), No. 32 (since 1970) IUGG Publications Office, 39 ter, Rue Gay-Lussac, Paris V, France (annually)

Taiwan: *Report on Sunspot Observations* Taiwan Provincial Weather Bureau Observatory, Taipei, Taiwan (quarterly since 1957)

USSR: СОЛНЕЧНЫЕ ДАННЫЕ *(Solar Data)* USSR Academy of Science (monthly since 1958) КОСМИЧЕСКИЕ ДАННЫЕ *(Cosmic Data)* (monthly since 1962) *Magnetic Fields of Sunspots* (bimonthly since 1964)

USA: *Preliminary Report and Forecast of Solar-Geophysical Activity* Space Environment Services Center, NOAA, Boulder, Colorado 80303 USA (weekly) *Solar-Geophysical Data* NOAA, Boulder, Colorado 80303 USA (monthly since November 1956)

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